

## WEST Search History

DATE: Friday, November 21, 2003

<u>Set Name</u> side by side	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u> result set
<i>DB=USPT,JPAB,EPAB,DWPI; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>			
L13	chondrus cripus	2	L13
L12	(oxidase or enzyme) and chondrus cripus	0	L12
L11	hexose oxidase and anti adj1 fouling	0	L11
<i>DB=USPT; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>			
L10	('6251626')[PN]	1	L10
<i>DB=USPT,JPAB,EPAB,DWPI; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>			
L9	L8 and marine organism	9	L9
L8	anti adj1 foul\$5 and enzyme	73	L8
L7	anti adj1 foul\$5 and oxidase	14	L7
L6	anti adj1 foul\$5 same oxidase	7	L6
L5	anti adj1 fouling and oxidase	14	L5
L4	l1 and oxidase	0	L4
L3	l1 and chondrus cripus	0	L3
<i>DB=PGPB; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>			
L2	anti adj1 fouling and marine organism	20	L2
<i>DB=USPT,JPAB,EPAB,DWPI; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>			
L1	anti adj1 fouling and marine organism	280	L1

END OF SEARCH HISTORY

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Search Results - Record(s) 1 through 2 of 2 returned.

1. Document ID: US 3901873 A

L13: Entry 1 of 2 File: USPT Aug 26, 1975

US-PAT-NO: 3901873  
DOCUMENT-IDENTIFIER: US 3901873 A  
TITLE: Process for the production of agar from a red alga  
DATE-ISSUED: August 26, 1975

INVENTOR-INFORMATION:				
NAME	CITY	STATE	ZIP CODE	COUNTRY
Doi; Shuji	Chigasaki			JA
Saito; Tomiji	Kawasaki			JA
Tozaki; Shigenobu	Fujisawa			JA

US-CL-CURRENT: 536/114

ABSTRACT:  
  
It is known that an agar substance such as agar-agar and British agar may be produced by extracting such an agar-yielding red alga as Gelidium subcostatum, Gracilaria Verrucosa, Chondrus crispus, Chondrus ocellata and Chondrus stellata with water. According to this invention, the raw material alga is pre-treated by subjecting to the action of a screw-extruder before the extraction of the raw alga with water is carried out. Agar product of high quality may be produced according to this invention in an improved high yield but without lowering significantly the jelly strength of the agar product recovered.

12 Claims, 0 Drawing figures  
Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
Draw. Desc	Image									

2. Document ID: DD 35018 A

L13: Entry 2 of 2 File: DWPI

DERWENT-ACC-NO: 1966-15554F  
DERWENT-WEEK: 196800  
COPYRIGHT 2003 DERWENT INFORMATION LTD  
TITLE: Algae extracts  
PRIORITY-DATA: 1961DD-0077320 (December 16, 1961)  
PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
DD 35018 A			000	

ABSTRACTED-PUB-NO: DD 35018A  
BASIC-ABSTRACT:

Process for prepn. of pharmaceutical prepn. based on Gigartina mamilliosa and Chondrus crispus (Iceland, Irish and carragheen moss). Hitherto the bleached products of these seaweeds have been used as emulsifiers, clarifying agents, demulcents etc. and textile and paper finishing agents. The discovery of the healing properties of the dried and unbleached material in the form of ointments, creams, lotions etc. is claimed to be new. An important factor for this purpose is claimed to be the content of iodine which is without adverse effect in iodine-sensitive subjects; also the contents of Br, Mg, Ca and Na.

Indications for this prepn. are: eczema, acne, furunculosis, carbuncles, luetic ulcers, exudations of scrofulous and venereal origin, leg ulcers, mammary gland suppuration, carcinoma of breast and uterus, inflammation of uterus, tumours, neuralgia, arthritis, burns etc.

Other examples. Cream with the above drugs; cosmetic cream; skin and after shaving creams; liniment and pedicure prepn.; prepn. for treatment and growth promotion of hair.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
Draw Desc	Image									

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Terms	Documents
chondrus crispus	2

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**WEST**[Generate Collection](#)[Print](#)**Search Results - Record(s) 1 through 14 of 14 returned.**☐ 1. Document ID: US 6291582 B1

L7: Entry 1 of 14

File: USPT

Sep 18, 2001

US-PAT-NO: 6291582

DOCUMENT-IDENTIFIER: US 6291582 B1

TITLE: Polymer-protein composites and methods for their preparation and use

DATE-ISSUED: September 18, 2001

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dordick; Jonathan S.	Schenectady	NY		
Wang; Ping	Akron	OH		
Sergeeva; Maria Vladimir	San Diego	CA		
Novick; Scott Joel	Iowa City	IA		

US-CL-CURRENT: 525/54.1; 435/177, 435/180, 435/181, 435/182, 527/201, 527/202, 527/203,  
530/402, 530/403, 530/812, 530/815, 530/816, 530/817

## ABSTRACT:

A method of preparing a polymer-protein composite based upon placing a protein in solution in an organic phase via the ion-pairing of the protein with a surfactant. The polymer-protein composites are useful, for example, as highly active and stable catalysts, in for example, paints and coatings, as well as in medical application.

28 Claims, 12 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 12

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC
Draw Desc	Image										

☐ 2. Document ID: US 5998200 A

L7: Entry 2 of 14

File: USPT

Dec 7, 1999

US-PAT-NO: 5998200

DOCUMENT-IDENTIFIER: US 5998200 A

TITLE: Anti-fouling methods using enzyme coatings

DATE-ISSUED: December 7, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bonaventura; Celia	Beaufort	NC		
Bonaventura; Joseph	Beaufort	NC		
Hooper; Irving R.	Beaufort	NC		

US-CL-CURRENT: 435/264; 106/15.05, 422/6, 424/94.1, 424/94.63, 435/174, 435/180

## ABSTRACT:

A method for preventing fouling of an aquatic apparatus by an aquatic organism which comprises affixing a biologically active chemical to a surface intended for use in contact with an aquatic environment containing the organism, wherein the chemical is an enzyme, repellant, chelating agent, enzyme inhibitor, or non-metallic toxicant capable of hindering the attachment of the organism to the surface while affixed to the surface, is disclosed along with improved apparatuses which are produced using the method.

14 Claims, 1 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KOMC
Draw Desc	Image										

☐ 3. Document ID: US 5965305 A

L7: Entry 3 of 14

File: USPT

Oct 12, 1999

US-PAT-NO: 5965305

DOCUMENT-IDENTIFIER: US 5965305 A

TITLE: Method for surface modification to create regions resistant to adsorption of biomolecules

DATE-ISSUED: October 12, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ligler; Frances S.	Potomac	MD		
Bhatia; Suresh	Burke	VA		
Shriver-Lake; Lisa C.	Silver Spring	MD		
Georger; Jacque	Springfield	VA		
Calvert; Jeff	Burke	VA		
Dulcey; Charles	Washington	DC		

US-CL-CURRENT: 430/17; 430/269, 430/271.1

## ABSTRACT:

Irradiating, with ultraviolet light, surfaces which contain thiol groups, epoxy groups, or vicinal diol groups, results in surfaces which exhibit a reduced adsorption of biomolecules. In the case of surfaces having thiol groups such irradiation also results in a reduced capacity for the bonding of heterobifunctional crosslinking reagents. Such irradiation may be carried out in a patternwise fashion to obtain patterned surfaces.

12 Claims, 4 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 4. Document ID: US 5914367 A

L7: Entry 4 of 14

File: USPT

Jun 22, 1999

US-PAT-NO: 5914367

DOCUMENT-IDENTIFIER: US 5914367 A

**\*\* See image for Certificate of Correction \*\***

TITLE: Polymer protein composites and methods for their preparation and use

DATE-ISSUED: June 22, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dordick; Jonathan S.	Iowa City	IA		
Wang; Ping	Knoxville	TN		
Sergeeva; Maria Vladimir	Tiffin	IA		
Novick; Scott Joël	Iowa City	IA		

US-CL-CURRENT: 525/54.1; 527/201, 527/202, 527/203

## ABSTRACT:

A method of preparing a polymer-protein composite including polymerizing a monomer in the presence of a protein dissolved in an organic phase via the ion-pairing of the protein with a surfactant. The polymer-protein composites are useful, for example, as highly active and stable catalysts, in for example, paints and coatings, as well as in medical application.

23 Claims, 9 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 9

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 5. Document ID: US 5780104 A

L7: Entry 5 of 14

File: USPT

Jul 14, 1998

US-PAT-NO: 5780104

DOCUMENT-IDENTIFIER: US 5780104 A

TITLE: Method for preventing the inner wall surfaces of the polymerization apparatus from being fouled with scale during the polymerization of vinyl chloride

DATE-ISSUED: July 14, 1998

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Takahashi; Akihiko	Osaka-fu			JP
Maeda; Sunao	Aichi-ken			JP
Ono; Yuzo	Aichi-ken			JP
Ozawa; Masaaki	Osaka-fu			JP
Nakamura; Ichisaburo	Osaka-fu			JP

US-CL-CURRENT: 427/230; 427/236, 526/201, 526/344, 526/345, 526/62, 528/126, 528/219, 528/86

ABSTRACT:

A method for the homopolymerization or copolymerization of vinyl chloride, wherein the inner wall of the polymerizer and the like are prevented from being fouled with the resulting polymer by applying a coating fluid containing the oxidative polymerization product of a specific phenolic monomer to the surface of the inner wall of the polymerizer and the like, as well as an anti-fouling agent used for this purpose. The method of this invention can very effectively prevent the polymerizer and the like from being fouled with the resulting polymer without affecting the polymerization rate and various properties of the product. Consequently, the necessity of performing the operation for removal of the deposited polymer after completion of each polymerization cycle is eliminated, thus making it possible to achieve closed polymerization requiring no manhole opening after each polymerization cycle which is becoming increasingly popular in recent years.

6 Claims, 0 Drawing figures  
Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KOMIC
Draw Desc	Image									

☐ 6. Document ID: US 5540828 A

L7: Entry 6 of 14

File: USPT

Jul 30, 1996

US-PAT-NO: 5540828  
DOCUMENT-IDENTIFIER: US 5540828 A

TITLE: Method for making electrochemical sensors and biosensors having a polymer modified surface

DATE-ISSUED: July 30, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yacynych; Alexander	East Brunswick	NJ	08816	

US-CL-CURRENT: 205/198; 204/403.11, 204/403.14, 204/415, 204/418, 205/317, 422/82.03, 435/287.2, 435/287.9, 435/817

ABSTRACT:

A method for making a sensing element for use in a sensor or biosensor that amperometrically measures the concentration of an analyte in a liquid, includes the following sequential steps: a) obtaining an electrode; b) immersing the electrode in a solution of monomer that is capable of being electropolymerized into an electrically insulating polymer; c) flowing an electric current from a cathode through the solution to the electrode at a voltage and amperage sufficient to cause the monomer to polymerize on the surface of the electrode, thereby yielding an electrode coated with an adherent layer of electrically insulating polymer; and e) impregnating the polymeric



coating on the surface with a sensing agent that is capable, when contacted by a specific analyte in a chemical or biological liquid, of generating an electroactive molecule that can be detected amperometrically.

19 Claims, 24 Drawing figures  
Exemplary Claim Number: 1  
Number of Drawing Sheets: 24

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMC
Draw Desc	Image									

☐ 7. Document ID: US 5391463 A

L7: Entry 7 of 14

File: USPT

Feb 21, 1995

US-PAT-NO: 5391463  
DOCUMENT-IDENTIFIER: US 5391463 A

TITLE: Surface modification to create regions resistant to adsorption of biomolecules

DATE-ISSUED: February 21, 1995

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ligler; Frances S.	Potomac	MD		
Bhatia; Suresh	Burke	VA		
Shriver-Lake; Lisa C.	Silver Spring	MD		
Georger; Jacque	Springfield	VA		
Calvert; Jeff	Burke	VA		
Dulcey; Charles	Washington	DC		

US-CL-CURRENT: 430/272.1; 427/553, 430/271.1, 430/326, 430/927, 435/176, 435/177,  
435/181, 436/525, 436/527, 436/528, 436/905

ABSTRACT:

Irradiating, with ultraviolet light, surfaces which contain thiol groups, epoxy groups, or vicinal diol groups, results in surfaces which exhibit a reduced adsorption of biomolecules. In the case of surfaces having thiol groups such irradiation also results in a reduced capacity for the bonding of heterobifunctional crosslinking reagents. Such irradiation may be carried out in a patternwise fashion to obtain patterned surfaces.

10 Claims, 4 Drawing figures  
Exemplary Claim Number: 1,6  
Number of Drawing Sheets: 2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMC
Draw Desc	Image									

☐ 8. Document ID: US 5286364 A

L7: Entry 8 of 14

File: USPT

Feb 15, 1994

US-PAT-NO: 5286364  
DOCUMENT-IDENTIFIER: US 5286364 A



TITLE: Surface-modified electrochemical biosensor

DATE-ISSUED: February 15, 1994

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yacynych; Alexander M.	East Brunswick	NJ		
Piznik; Sylvia S.	Jackson	NJ		
Reynolds; Eugene R.	Highland Park	NJ		
Geise; Robert J.	Piscataway	NJ		

US-CL-CURRENT: 205/83; 204/403.11, 204/418, 205/198, 205/317, 435/817

## ABSTRACT:

An electrode for a biosensor (e.g., a glucose biosensor) has a layer of an electrically insulating polymer formed in situ on its operating surface by electropolymerization. For example, a diaminobenzene and a dihydroxybenzene (e.g., 1,3-diaminobenzene and resorcinol) are copolymerized on the electrode's surface by immersing the electrode in a circulating dilute solution of the monomers in deaerated phosphate buffer, and applying a small, continuously cycling voltage between that electrode and another electrode (e.g., from 0.00 V to 0.80 V) until current flow between the electrodes decreases to a minimum. Because the polymer is electrically insulating, polymerization ceases while the polymer layer is still very thin (e.g., 10 nm). An analyte sensing agent, e.g., an enzyme such as immobilized glucose oxidase, is imbedded in the polymer, but with a number of its analyte recognition sites unblocked. The polymer layer shields the electrode surface from interferents and fouling agents such as uric acid and proteins, but it is sufficiently porous to permit smaller electroactive molecules (e.g., hydrogen peroxide) generated through contact of the enzyme with the analyte molecules to diffuse through to the electrode surface. Preferably a ferrocene compound (e.g., alpha-hydroxy-ethylferrocene or 1,1'-dimethylferrocene), which functions as an electron mediator, is applied to the polymer film, and held there by adsorption.

11 Claims, 24 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 24

Full	Title	Station	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KVMC

☐ 9. Document ID: US 5015677 A

L7: Entry 9 of 14

File: USPT

May 14, 1991

US-PAT-NO: 5015677

DOCUMENT-IDENTIFIER: US 5015677 A

TITLE: Adhesives derived from bioadhesive polyphenolic proteins

DATE-ISSUED: May 14, 1991

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Benedict; Christine V.	Farmington	CT		
Picciano; Paul T.	Canton	CT		

US-CL-CURRENT: 524/17; 106/124.1, 106/135.1, 106/151.1, 106/154.11, 106/159.1, 106/160.1, 156/336, 524/21, 524/22, 524/25, 530/328, 530/350

## ABSTRACT:

An adhesive or coating formulation useful in biomedical application and particularly well suited for use in aqueous environments is provided comprising:

(1) a bioadhesive polyphenolic protein component having from about 5 to about 99 weight percent of a proteinaceous substance comprising from about 10 to about 400 of the following repeating decapeptide unit: ##STR1## in which each X is hydrogen or hydroxyl and each R is hydrogen or methyl; (2) from about 1.0 to about 40 weight percent of a cross-linking agent which promotes cross-linking of the decapeptide;

(3) one or more additives which promote the desired properties of the formulation, said additives comprising at least one surfactant and being present in an amount of from 0% to about 90% by weight, and

(4) a filler compatible with the intended use of the formulation, said filler being present in an amount of from 0% to about 50% by weight.

34 Claims, 0 Drawing figures  
Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

K00C

☐ 10. Document ID: US 4778653 A

L7: Entry 10 of 14

File: USPT

Oct 18, 1988

US-PAT-NO: 4778653

DOCUMENT-IDENTIFIER: US 4778653 A

TITLE: Method for preventing biofouling of surfaces in contact with sea water

DATE-ISSUED: October 18, 1988

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kamimura; Kazuo	Kure			JP
Araki; Michio	Kure			JP

US-CL-CURRENT: 422/6; 210/764, 422/28, 422/7, 435/264, 435/800, 435/948

ABSTRACT:

The invention provides a novel and efficient method for preventing biofouling on the surface of a solid body continuously in contact with bacteria-containing sea water, such as the heat transfer surface in a heat exchanger using sea water as the cooling medium, caused by the attachment of the proliferated bacteria. The method comprises adding bacteriophages capable of lysing the bacteria responsible for the biofouling of the surface to the sea water brought into contact with the surface so that the sea water can be efficiently and inexpensively sterilized prior to contacting with the surface not to cause biofouling absolutely without the problem of environmental pollution.

2 Claims, 0 Drawing figures  
Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

K00C

☐ 11. Document ID: US 4603006 A

L7: Entry 11 of 14

File: USPT

Jul 29, 1986

US-PAT-NO: 4603006

DOCUMENT-IDENTIFIER: US 4603006 A

**\*\* See image for Certificate of Correction \*\***

TITLE: Inhibition of inorganic or biological CaCO.sub.3 deposition by synthetic polysaccharide derivatives

DATE-ISSUED: July 29, 1986

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Sikes; C. Steven	Mobile	AL		
Wheeler; A. P.	Clemson	SC		

US-CL-CURRENT: 252/180; 210/698, 252/175, 427/384

## ABSTRACT:

The present invention relates to a method of inhibiting the formation of calcium carbonate-containing deposits on a surface by applying a composition comprising an anticalcification-effective amount of a polysaccharide or derivative thereof. The present method is useful for the prevention and/or retardation (inhibition) of inorganic scaling, as well as, for the inhibition of fouling by plant or animal organisms.

17 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	K00C
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☐ 12. Document ID: US 4587021 A

L7: Entry 12 of 14

File: USPT

May 6, 1986

US-PAT-NO: 4587021

DOCUMENT-IDENTIFIER: US 4587021 A

**\*\* See image for Certificate of Correction \*\***

TITLE: Inhibition of the formation of inorganic or biological CaCO.sub.3 -containing deposits by a proteinaceous fraction obtained from CaCO.sub.3 -forming organisms

DATE-ISSUED: May 6, 1986

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Wheeler; Alfred P.	Clemson	SC		
Sikes; C. Steven	Mobile	AL		

US-CL-CURRENT: 210/698; 106/14.05, 134/22.14, 252/180, 422/16

## ABSTRACT:

The present invention relates to a method of inhibiting the formation of CaCO.sub.3 -containing deposits on a surface by applying a composition comprising an anti

calcification-effective amount of the peptide-containing or the protein-containing fractions isolated from a CaCO.sub.3 -containing tissue obtained from a CaCO.sub.3 -forming organism. Said fractions can be isolated from many CaCO.sub.3 -containing tissues, including, but not limited to, molluscan shells, echinoderm skeletons, carbonate sands, crustacean exoskeletons, coral endoskeletons and the like. The present method is useful for the prevention and/or retardation of inorganic scaling, as well as, for the inhibition of fouling by plant or animal organisms.

21 Claims, 14 Drawing figures  
Exemplary Claim Number: 1,15  
Number of Drawing Sheets: 7

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☐ 13. Document ID: US 4585560 A

L7: Entry 13 of 14

File: USPT

Apr 29, 1986

US-PAT-NO: 4585560

DOCUMENT-IDENTIFIER: US 4585560 A

**\*\* See image for Certificate of Correction \*\***

TITLE: Inhibition of inorganic and biological CaCO.sub.3 deposition by a polysaccharide fraction obtained from CaCO.sub.3 -forming organisms

DATE-ISSUED: April 29, 1986

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Sikes; C. Steven	Mobile	AL		
Wheeler; A. P.	Clemson	SC		

US-CL-CURRENT: 210/698; 106/14.15, 134/22.14, 252/180, 422/16

## ABSTRACT:

The present invention relates to a method of inhibiting the formation of CaCO.sub.3 -containing deposits on a surface, by applying a composition comprising an anti-calcification effective amount of the polysaccharide-containing fraction substantially devoid of proteinaceous material, isolated from a CaCO.sub.3 -containing tissue obtained from a CaCO.sub.3 -forming organism. The fractions can be isolated from a variety of CaCO.sub.3 -containing tissues, including but not limited to algae coccolith and the like. The present method is useful for the prevention and/or retardation of inorganic scaling, as well as, for the inhibition of fouling by plant or animal organisms.

12 Claims, 0 Drawing figures  
Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☐ 14. Document ID: US 4534881 A

L7: Entry 14 of 14

File: USPT

Aug 13, 1985

US-PAT-NO: 4534881

DOCUMENT-IDENTIFIER: US 4534881 A

**\*\* See image for Certificate of Correction \*\***

TITLE: Inhibition of inorganic or biological CaCO.sub.3 deposition by poly amino acid derivatives

DATE-ISSUED: August 13, 1985

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Sikes; C. Steven	Mobile	AL		
Wheeler; Alfred P.	Clemson	SC		

US-CL-CURRENT: 252/180; 210/698, 252/175, 422/16, 930/290

## ABSTRACT:

The present invention relates to a method of inhibiting the formation of CaCO.sub.3-containing deposits on a surface by applying a composition comprising an anti calcification-effective amount of a poly amino acid, a poly amino acid amide or derivative thereof. The present method is useful for the prevention and/or retardation (inhibition) of inorganic scaling, as well as for the inhibition of fouling by plant or animal organisms.

15 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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anti adj1 foul\$5 and oxidase	14

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**Search Results - Record(s) 1 through 9 of 9 returned.**☐ 1. Document ID: US 6608129 B1

L9: Entry 1 of 9

File: USPT

Aug 19, 2003

US-PAT-NO: 6608129

DOCUMENT-IDENTIFIER: US 6608129 B1

TITLE: Polymer composites and methods for making and using same

DATE-ISSUED: August 19, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Koloski; Timothy S.	West Amherst	NY		
Vargo; Terrence G.	Kenmore	NY		

US-CL-CURRENT: 524/403; 524/430, 524/431, 524/433, 524/439, 524/502, 524/515, 524/520,  
524/544, 524/546

## ABSTRACT:

Composites which include a polymer matrix having natural free volume therein and an inorganic or organic material disposed in the natural free volume of the polymer matrix are disclosed. In addition, methods for making a composite are described. A polymer matrix having free volume therein is provided. The free volume is evacuated, and inorganic or organic molecules are infused into the evacuated free volume of the polymer matrix. The inorganic or organic molecules can then be polymerized under conditions effective to cause the polymerized inorganic or organic molecules to assemble into macromolecular networks. Alternatively, where the polymer matrix contains a functionality, the inorganic or organic molecules can be treated under conditions effective to cause the inorganic or organic molecules to interact with the polymer matrix's functionality. Use of the disclosed composites as photoradiation shields and filters, electromagnetic radiation shields and filters, antistatic layers, heterogeneous catalysts, conducting electrodes, materials having flame and heat retardant properties, components in the construction of electrolytic cells, fuel cells, and optoelectronic devices, and antifouling coatings is also described.

25 Claims, 4 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 3

Full	Title	Citation	From	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

K00C

☐ 2. Document ID: US 6410622 B1

L9: Entry 2 of 9

File: USPT

Jun 25, 2002

US-PAT-NO: 6410622

DOCUMENT-IDENTIFIER: US 6410622 B1



TITLE: Method of preventing fouling organisms in marine environments and polymer-bound nitric oxide/nitric oxide-releasing compositions usable therefor

DATE-ISSUED: June 25, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Endres; Gregory W.	Saline	MI	48176	

US-CL-CURRENT: 524/189; 523/122, 525/360, 525/376, 525/420, 525/437, 525/453, 525/454, 527/312

ABSTRACT:

A method of preventing fouling organisms in marine environments comprises the step of introducing into the marine environment in a predetermined form and in a sufficient amount an antifouling composition having as its effective ingredient a nitric oxide-releasing functional group of the diazeniumdiolate structure: ##STR1##

whereupon nitric oxide is controllably released into the marine environment to prevent at least one of the fouling organisms' propagation, ability to attach, and ability to function.

An antifouling composition consists essentially of an antifouling-acceptable carrier and a coprecipitation product of polylactide/glycolide and diethylenetriamine having the formula  $H_{.3}N^{+}CH_{.2}CH_{.2}N(N_{.2}O_{.2})_{.1}CH_{.2}NH_{.2}$ , wherein diethylenetriamine contains a nitric oxide-releasing functional group.

20 Claims, 0 Drawing figures  
Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMC
Draw Desc	Image									

☐ 3. Document ID: US 6280759 B1

L9: Entry 3 of 9

File: USPT

Aug 28, 2001

US-PAT-NO: 6280759

DOCUMENT-IDENTIFIER: US 6280759 B1

TITLE: Method of controlled release and controlled release microstructures

DATE-ISSUED: August 28, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Price; Ronald R.	Stevensville	MD	21666	
Schnur; Joel M.	Burke	VA	22015	
Schoen; Paul E.	Alexandria	VA	22304	
Testoff; Mary	Greenbelt	MD	20770	
Georger, Jr.; Jacque H.	Springfield	VA	22153	
Rudolph; Alan	Bowie	MD	20716	
Brady; Robert F.	Gaithersburg	MD	20878	

US-CL-CURRENT: 424/408; 424/405, 424/406, 424/411, 424/417, 424/418, 424/419, 424/420, 424/499, 523/122



## ABSTRACT:

Tubules which contain an active agent in their lumen and compositions containing such microtubules are effective for providing a slow, controlled release of the active agent. Such microtubules are useful in the production of coating compositions for the protection of surfaces coming into contact with water, adhesive resins for the production of laminated wood products, and devices for dispensing pesticides.

14 Claims, 5 Drawing figures  
Exemplary Claim Number: 1  
Number of Drawing Sheets: 5

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KWC

☐ 4. Document ID: US 5786392 A

L9: Entry 4 of 9

File: USPT

Jul 28, 1998

US-PAT-NO: 5786392

DOCUMENT-IDENTIFIER: US 5786392 A

TITLE: Organometallic compounds and polymers made therefrom

DATE-ISSUED: July 28, 1998

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Silverman; Gary S.	Stockton	NJ	08559	
Uhm; Haewon L.	Collegeville	PA	19426	
Tseng; Kenneth K.S.	Lawrenceville	NJ	08648	

US-CL-CURRENT: 514/772.4; 514/772.5, 526/240

## ABSTRACT:

Compounds of formula (I) are disclosed: ##STR1## wherein L.sup.1 is a main group atom, L.sup.2 is a neutral ligand, M is a transition element or a metal element of Group 13, 14, 15, or 16 of the Periodic Table, x is the number of coordination sites of M, R.sup.1 is a polymerizable group, R.sup.2, R.sup.3, and R.sup.4 are ligands, and R.sup.5 is an anionic ligand. The compounds or monomers of formula (I) are capable of conversion to polymers by combination with one or more other known monomers, such as methyl methacrylate. Such polymers can then be added as a binder in a paint formulation to make marine antifouling coating compositions. Also described is a method to prevent fouling on surfaces wherein a composition containing a metal complex compound of formula (II): ##STR2## wherein M, x, L.sup.2, n, and R.sup.4 have the same meaning as in formula (I), is applied to the surface susceptible to fouling.

29 Claims, 0 Drawing figures  
Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KWC

☐ 5. Document ID: US 5492696 A

L9: Entry 5 of 9

File: USPT

Feb 20, 1996

US-PAT-NO: 5492696

DOCUMENT-IDENTIFIER: US 5492696 A

TITLE: Controlled release microstructures

DATE-ISSUED: February 20, 1996

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Price; Ronald R.	Stevensville	MD		
Schnur; Joel M.	Burke	VA		
Schoen; Paul E.	Alexandria	VA		
Testoff; Mary	Greenbelt	MD		
Georger, Jr.; Jacque H.	Springfield	VA		
Rudolph; Alan	Bowie	MD		
Brady; Robert F.	Gaithersburg	MD		

US-CL-CURRENT: 424/417; 264/4.4, 264/4.7, 424/405, 424/406, 424/419

## ABSTRACT:

Tubules which contain an active agent in their lumen and compositions containing such microtubules are effective for providing a slow, controlled release of the active agent. Such microtubules are useful in the production of coating compositions for the protection of surfaces coming into contact with water, adhesive resins for the production of laminated wood products, and devices for dispensing pesticides.

3 Claims, 5 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 5

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 6. Document ID: US 4594965 A

L9: Entry 6 of 9

File: USPT

Jun 17, 1986

US-PAT-NO: 4594965

DOCUMENT-IDENTIFIER: US 4594965 A

TITLE: Symbiotic aqua-culture

DATE-ISSUED: June 17, 1986

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Asher, Jr.; Donald F.	Annapolis	MD	21403	
Munz, deceased; Otto J.	late of Arlington	VA		
Munz, Executrix; by Gerta H.	Arlington	VA		

US-CL-CURRENT: 119/239; 119/200, 119/242

## ABSTRACT:

A symbiotic aqua-culture system includes a barrier fence surrounding a protected body of water in which is extended a conduit having a plurality of tubes therein and which

is coaxial with a tubular screen. An electrode in the form of a helically wound wire on the conduit coats with the tubular screen, which comprises a second electrode, to form an electrical field which attracts marine life and stimulates the growth thereof. The barrier fence may also be constructed to produce an electrical field to inhibit or kill undesired marine organisms attempting to pass through the fence. The tubes within the conduit are connected to sources of various materials, such as nutrients, algacide, heat, etc., and valves are connected with the tubes to control flow therethrough. Orifices connect the tubes with the surface of the conduit along its length to supply the materials as desired. The method of symbiotic mari-culture using the structure is also disclosed.

10 Claims, 7 Drawing figures  
Exemplary Claim Number: 1  
Number of Drawing Sheets: 2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMIC

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☐ 7. Document ID: US 4297137 A

L9: Entry 7 of 9

File: USPT

Oct 27, 1981

US-PAT-NO: 4297137  
DOCUMENT-IDENTIFIER: US 4297137 A

TITLE: Anti-fouling paint

DATE-ISSUED: October 27, 1981

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Sachetto; Jean-Pierre	Saint-Julien-en-Genevois			FR
Cuccolo; Sergio	Geneva			CH

US-CL-CURRENT: 514/493; 106/156.1, 106/156.23, 106/157.8, 106/163.01, 106/203.1,  
106/203.3, 106/204.01, 424/635, 424/638

## ABSTRACT:

The invention relates to anti-fouling paints and is concerned with anti-fouling paints developed for inhibiting the fixation of marine organisms on structures which are immersed in sea water, the paints including at least one toxic substance uniformly incorporated into a discontinuous solid matrix which is insoluble in sea water and is dispersed in the paint, the matrix being at least partially formed from at least one substance which becomes soluble in sea water under the action of enzymes liberated by the marine organisms to be inhibited and/or by the bacterial film in contact with the surface of the paint.

The paints according to the invention provide an effective life which is much longer than that of the known anti-fouling paints.

The invention relates to an anti-fouling paint containing at least one toxic substance.

5 Claims, 0 Drawing figures  
Exemplary Claim Number: 1

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Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMIC

8. Document ID: MX 2001012448 A1 WO 200075293 A2 AU 200050978 A BR  
200010932 A NO 200105831 A KR 2002010153 A US 20020106361 A1 CN 1364185 A EP  
1282669 A2 JP 2003525312 W

L9: Entry 8 of 9

File: DWPI

Jun 1, 2002

DERWENT-ACC-NO: 2001-112148  
DERWENT-WEEK: 200365  
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TITLE: New anti-fouling composition, useful as a coating for treating different surfaces, e.g. outdoor woodwork, external surface of a central heating system, or a hull of a marine vessel

INVENTOR: KRAGH, K M; POULSEN, C H

PRIORITY-DATA: 1999GB-0013050 (June 4, 1999)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
MX 2001012448 A1	June 1, 2002		000	C12N009/00
WO 200075293 A2	December 14, 2000	E	036	C12N009/00
AU 200050978 A	December 28, 2000		000	
BR 200010932 A	February 26, 2002		000	C12N009/00
NO 200105831 A	January 31, 2002		000	C12N000/00
KR 2002010153 A	February 2, 2002		000	C12N009/00
US 20020106361 A1	August 8, 2002		000	A01N063/00
CN 1364185 A	August 14, 2002		000	C09D005/16
EP 1282669 A2	February 12, 2003	E	000	C09D005/16
JP 2003525312 W	August 26, 2003		042	C09K003/00

INT-CL (IPC): A01 N 63/00; C02 F 1/00; C02 F 1/50; C08 L 89/00; C09 D 5/16; C09 D 7/12; C09 D 201/00; C09 K 3/00; C12 N 0/00; C12 N 9/00; C12 N 9/04; C12 N 9/34

ABSTRACTED-PUB-NO: US20020106361A

## BASIC-ABSTRACT:

NOVELTY - A new anti-fouling composition comprises a surface coating material, an enzyme obtained or obtainable from a marine organism and a substrate for the enzyme, and/or a precursor enzyme and a precursor substrate.

DETAILED DESCRIPTION - A new anti-fouling composition comprises a surface coating material, an enzyme obtained or obtainable from a marine organism and a substrate for the enzyme, and/or a precursor enzyme and a precursor substrate. The precursor enzyme and the precursor substrate are selected so that a substrate for the enzyme is generated by action of the precursor enzyme on the precursor substrate. The enzyme and the substrate are selected so that an anti-foulant compound is generated by action of the enzyme on the substrate.

INDEPENDENT CLAIMS are also included for the following:

- (1) a coating consisting of the anti-fouling composition;
- (2) a marine anti-foul consisting of the composition; and
- (3) a method for releasing an anti-fouling compound from a surface coating comprising incorporating in a surface coating the anti-fouling composition above.

USE - The anti-fouling composition is useful as a coating formulated for treating a surface, e.g. outdoor wood work, external surface of a central heating system, or a hull of a marine vessel (claimed). It is also useful as an anti-fouling agent for marine structures exposed to seawater flora and fauna.

ADVANTAGE - The use of tributyl tin as marine anti-fouls has led to the pollution of

surrounding water due to leaching which can cause the degradation of mussel and shell organisms. The use of the present anti-fouling composition is safer for the environment. It also has long term effectiveness in harsh environment, e.g. marine environment. It requires less substrate and less enzyme than prior art systems to provide a given anti-microbial effect. Furthermore, it has improved salt tolerance, which leads to further improved activity in marine environments, and is resistant to degradation by fouling.

ABSTRACTED-PUB-NO:

WO 200075293A EQUIVALENT-ABSTRACTS:

NOVELTY - A new anti-fouling composition comprises a surface coating material, an enzyme obtained or obtainable from a marine organism and a substrate for the enzyme, and/or a precursor enzyme and a precursor substrate.

DETAILED DESCRIPTION - A new anti-fouling composition comprises a surface coating material, an enzyme obtained or obtainable from a marine organism and a substrate for the enzyme, and/or a precursor enzyme and a precursor substrate. The precursor enzyme and the precursor substrate are selected so that a substrate for the enzyme is generated by action of the precursor enzyme on the precursor substrate. The enzyme and the substrate are selected so that an anti-foulant compound is generated by action of the enzyme on the substrate.

INDEPENDENT CLAIMS are also included for the following:

- (1) a coating consisting of the anti-fouling composition;
- (2) a marine anti-foul consisting of the composition; and
- (3) a method for releasing an anti-fouling compound from a surface coating comprising incorporating in a surface coating the anti-fouling composition above.

USE - The anti-fouling composition is useful as a coating formulated for treating a surface, e.g. outdoor wood work, external surface of a central heating system, or a hull of a marine vessel (claimed). It is also useful as an anti-fouling agent for marine structures exposed to seawater flora and fauna.

ADVANTAGE - The use of tributyl tin as marine anti-fouls has led to the pollution of surrounding water due to leaching which can cause the degradation of mussel and shell organisms. The use of the present anti-fouling composition is safer for the environment. It also has long term effectiveness in harsh environment, e.g. marine environment. It requires less substrate and less enzyme than prior art systems to provide a given anti-microbial effect. Furthermore, it has improved salt tolerance, which leads to further improved activity in marine environments, and is resistant to degradation by fouling.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☐ 9. Document ID: GB 2306473 A GB 2306473 B JP 09118842 A JP 09118844 A JP 09124570 A US 5770188 A

L9: Entry 9 of 9

File: DWPI

May 7, 1997

DERWENT-ACC-NO: 1997-229317

DERWENT-WEEK: 199902

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TITLE: Glucoside derivatives for enzyme modification - are useful for producing a lipid-coated enzyme in antifouling paint compositions

INVENTOR: HAMADE, R; OKAHATA, Y ; YAMAMORI, N

PRIORITY-DATA: 1995JP-0278722 (October 26, 1995), 1995JP-0278709 (October 26, 1995), 1995JP-0278718 (October 26, 1995)



## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
GB 2306473 A	May 7, 1997		029	C07C235/06
GB 2306473 B	December 23, 1998		000	C07C235/06
JP 09118842 A	May 6, 1997		006	C09D005/14
JP 09118844 A	May 6, 1997		005	C09D005/16
JP 09124570 A	May 13, 1997		004	C07C235/06
US 5770188 A	June 23, 1998		000	A61K031/74

INT-CL (IPC): A61 K 31/74; C07 C 235/06; C09 D 5/14; C09 D 5/16; C09 D 7/12; C09 D 101/00; C09 D 167/00; C12 N 9/00

ABSTRACTED-PUB-NO: GB 2306473A

## BASIC-ABSTRACT:

Glucoside derivatives for enzyme modification of formula (I) are new. R1, R2 = 6-20C hydrocarbon. Also claimed are: (1) a lipid-coated enzyme coated with (I) for enzyme modification; (2) production of lipid-coated enzymes comprising dissolving (I) in hydrophilic solvent and adding this solution dropwise into a buffer solution containing an enzyme; and (3) an anti-fouling paint composition comprising a lipid stable enzyme, stable in organic solvents as a result of coating with a lipid having 6-30C and a paint resin.

USE - (I) is useful for producing lipid-coated enzymes in antifouling paint compositions. Proteins and polysaccharides involved in the attachment of marine organisms can be degraded. Cell walls of attaching organisms may also be degraded.

ADVANTAGE - The paint resin used is enzyme-susceptible and can be degraded by the lipid-coated enzyme, to form a self-polishing antifouling composition.

ABSTRACTED-PUB-NO:

GB 2306473B EQUIVALENT-ABSTRACTS:

Glucoside derivatives for enzyme modification of formula (I) are new. R1, R2 = 6-20C hydrocarbon. Also claimed are: (1) a lipid-coated enzyme coated with (I) for enzyme modification; (2) production of lipid-coated enzymes comprising dissolving (I) in hydrophilic solvent and adding this solution dropwise into a buffer solution containing an enzyme; and (3) an anti-fouling paint composition comprising a lipid stable enzyme, stable in organic solvents as a result of coating with a lipid having 6-30C and a paint resin.

USE - (I) is useful for producing lipid-coated enzymes in antifouling paint compositions. Proteins and polysaccharides involved in the attachment of marine organisms can be degraded. Cell walls of attaching organisms may also be degraded.

ADVANTAGE - The paint resin used is enzyme-susceptible and can be degraded by the lipid-coated enzyme, to form a self-polishing antifouling composition.

US 5770188A

Glucoside derivatives for enzyme modification of formula (I) are new. R1, R2 = 6-20C hydrocarbon. Also claimed are: (1) a lipid-coated enzyme coated with (I) for enzyme modification; (2) production of lipid-coated enzymes comprising dissolving (I) in hydrophilic solvent and adding this solution dropwise into a buffer solution containing an enzyme; and (3) an anti-fouling paint composition comprising a lipid stable enzyme, stable in organic solvents as a result of coating with a lipid having 6-30C and a paint resin.

USE - (I) is useful for producing lipid-coated enzymes in antifouling paint compositions. Proteins and polysaccharides involved in the attachment of marine organisms can be degraded. Cell walls of attaching organisms may also be degraded.

ADVANTAGE - The paint resin used is enzyme-susceptible and can be degraded by the lipid-coated enzyme, to form a self-polishing antifouling composition.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMC
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Terms	Documents
L8 and marine organism	9

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**WEST**[Generate Collection](#)[Print](#)**Search Results - Record(s) 1 through 20 of 20 returned.**☐ 1. Document ID: US 20030190482 A1

L2: Entry 1 of 20

File: PGPB

Oct 9, 2003

PGPUB-DOCUMENT-NUMBER: 20030190482

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030190482 A1

TITLE: Robust nontoxic antifouling elastomers

PUBLICATION-DATE: October 9, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Brady, Robert F. JR.	Gaithersburg	MD	US	

US-CL-CURRENT: 428/423.1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMC
Draw Desc	Image									

☐ 2. Document ID: US 20030185897 A1

L2: Entry 2 of 20

File: PGPB

Oct 2, 2003

PGPUB-DOCUMENT-NUMBER: 20030185897

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030185897 A1

TITLE: COMPOSITION COMPRISING ZOANTHUS SP. EXTRACT WITH ANTI-FOULING ACTIVITY AND A METHOD THEREOF

PUBLICATION-DATE: October 2, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Gonsalves, Cynthia Olimpia Lydia	Goa		IN	
Achuthankutty, Chittur Thelakkat	Goa		IN	
Subrayan, Perunninakulath Parameswaran	Goa		IN	
Naik, Chandrakant Govind	Goa		IN	

US-CL-CURRENT: 424/520

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMC
Draw Desc	Image									

☐ 3. Document ID: US 20030166768 A1

L2: Entry 3 of 20

File: PGPB

Sep 4, 2003

PGPUB-DOCUMENT-NUMBER: 20030166768  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20030166768 A1

TITLE: Marine paint compositions

PUBLICATION-DATE: September 4, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Gillard, Michel	Corroy-le-Chateau		BE	
Vos, Marcel	Nivelles		BE	
Prinsen, Jos G M.	Ga Bussum		NL	

US-CL-CURRENT: 524/530; 524/523

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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KMC

☐ 4. Document ID: US 20030166237 A1

L2: Entry 4 of 20

File: PGPB

Sep 4, 2003

PGPUB-DOCUMENT-NUMBER: 20030166237  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20030166237 A1

TITLE: Antifouling paint composition comprising rosin and enzyme

PUBLICATION-DATE: September 4, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Allermann, Knud	Rungsted Kyst		DK	
Schneider, Ib	Copenhagen		DK	

US-CL-CURRENT: 435/204; 106/16, 435/200, 435/222

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Drawn Desc	Image								

KMC

☐ 5. Document ID: US 20030116441 A1

L2: Entry 5 of 20

File: PGPB

Jun 26, 2003

PGPUB-DOCUMENT-NUMBER: 20030116441  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20030116441 A1

TITLE: Prevention of marine encrustation on bronze propellers

PUBLICATION-DATE: June 26, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Kempin, Ronald	Bull Creek		AU	

US-CL-CURRENT: 205/191; 205/206

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMC
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☐ 6. Document ID: US 20030113547 A1

L2: Entry 6 of 20

File: PGPB

Jun 19, 2003

PGPUB-DOCUMENT-NUMBER: 20030113547

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030113547 A1

TITLE: Robust nontoxic antifouling elastomers

PUBLICATION-DATE: June 19, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Brady, Robert F. JR.	Gaithersburg	MD	US	

US-CL-CURRENT: 428/423.1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMC
Draw Desc	Image									

☐ 7. Document ID: US 20030087338 A1

L2: Entry 7 of 20

File: PGPB

May 8, 2003

PGPUB-DOCUMENT-NUMBER: 20030087338

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030087338 A1

TITLE: Adhesive DOPA-containing polymers and related methods of use

PUBLICATION-DATE: May 8, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Messersmith, Phillip B.	Clarendon Hills	IL	US	
Huang, Kui	Evanston	IL	US	
Lee, Bruce P.	Evanston	IL	US	
Dalsin, Jeffrey	Chicago	IL	US	
Hu, Bi-Huang	Chicago	IL	US	
Friedstat, Jonathan	Wilmette	IL	US	

US-CL-CURRENT: 435/68.1; 527/200

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMC
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☐ 8. Document ID: US 20020192181 A1

L2: Entry 8 of 20

File: PGPB

Dec 19, 2002

PGPUB-DOCUMENT-NUMBER: 20020192181  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20020192181 A1

TITLE: Anti-fouling compositions with a fluorinated alkyl- or alkoxy-containing polymer or oligomer

PUBLICATION-DATE: December 19, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Williams, David Neil	Newcastle Upon Tyne		GB	
Shewring, Nigel Ivor Edward	Newcastle Upon Tyne		GB	
Lee, Adrian James	Newcastle Upon Tyne		GB	

US-CL-CURRENT: 424/78.09

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
Draw Desc	Image									

☐ 9. Document ID: US 20020182980 A1

L2: Entry 9 of 20

File: PGPB

Dec 5, 2002

PGPUB-DOCUMENT-NUMBER: 20020182980  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20020182980 A1

TITLE: Method for protecting underwater surfaces against pollution due to fouling, and brush and coating agent used therewith

PUBLICATION-DATE: December 5, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Van Rompay, Boudewijn Gabriel	Clearwater	FL	US	

US-CL-CURRENT: 451/28; 114/222, 15/1.7, 15/207.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
Draw Desc	Image									

☐ 10. Document ID: US 20020177627 A1

L2: Entry 10 of 20

File: PGPB

Nov 28, 2002

PGPUB-DOCUMENT-NUMBER: 20020177627  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20020177627 A1

TITLE: Microbiocidal properties of poly-substituted guanidinium salts

PUBLICATION-DATE: November 28, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Fyles, Thomas M.	Victoria		CA	
Rowe, Robert D.	Victoria		CA	

US-CL-CURRENT: 514/580; 514/353, 514/634

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 11. Document ID: US 20020161147 A1

L2: Entry 11 of 20

File: PGPB

Oct 31, 2002

PGPUB-DOCUMENT-NUMBER: 20020161147

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020161147 A1

TITLE: Polymer material with stable non-wetting surface

PUBLICATION-DATE: October 31, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Ober, Christopher K.	Ithaca	NY	US	
Xiang, Maoliang	Naugatuck	CT	US	
Wynne, Kenneth J.	Richmond	VA	US	

US-CL-CURRENT: 526/242

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 12. Document ID: US 20020142022 A1

L2: Entry 12 of 20

File: PGPB

Oct 3, 2002

PGPUB-DOCUMENT-NUMBER: 20020142022

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020142022 A1

TITLE: Method of controlled release and controlled release microstructures

PUBLICATION-DATE: October 3, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Price, Ronald R.	Stevensville	MD	US	
Schnur, Joel M.	Burke	VA	US	
Schoen, Paul E.	Alexandria	VA	US	
Testoff, Mary	Greenbelt	MD	US	
Georger, Jacque H. JR.	Springfield	VA	US	
Rudolph, Alan	Bowie	MD	US	
Brady, Robert F.	Gaithersburg	MD	US	

US-CL-CURRENT: 424/405; 424/417, 424/450

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 13. Document ID: US 20020112858 A1

L2: Entry 13 of 20

File: PGPB

Aug 22, 2002

PGPUB-DOCUMENT-NUMBER: 20020112858

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020112858 A1

TITLE: Smooth buoyancy system for reducing vortex induced vibration in subsea systems

PUBLICATION-DATE: August 22, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
McDaniel, Richard Bruce	Houston	TX	US	
Allen, Donald Wayne	Katy	TX	US	
McMillian, David Wayne	Deer Park	TX	US	
Dupal, Kenneth	Mandeville	LA	US	

US-CL-CURRENT: 166/350; 166/367

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 14. Document ID: US 20020110575 A1

L2: Entry 14 of 20

File: PGPB

Aug 15, 2002

PGPUB-DOCUMENT-NUMBER: 20020110575

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020110575 A1

TITLE: Composite biocidal particles

PUBLICATION-DATE: August 15, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Gavin, David F.	Cheshire	CT	US	
Waldron, Craig	Wolcott	CT	US	
Martin, Robert J.	Monroe	CT	US	
Polson, George A.	Harwinton	CT	US	

US-CL-CURRENT: [424/408](#); [424/630](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 15. Document ID: US 20020106361 A1

L2: Entry 15 of 20

File: PGPB

Aug 8, 2002

PGPUB-DOCUMENT-NUMBER: 20020106361  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20020106361 A1

TITLE: Composition

PUBLICATION-DATE: August 8, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Poulsen, Charlotte Horsmans	Brabrand		DK	
Kragh, Karsten Matthias	Viby J,		DK	

US-CL-CURRENT: [424/94.4](#); [504/117](#), [523/105](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 16. Document ID: US 20020102405 A1

L2: Entry 16 of 20

File: PGPB

Aug 1, 2002

PGPUB-DOCUMENT-NUMBER: 20020102405  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20020102405 A1

TITLE: Surfaces that resist the adsorption of biological species

PUBLICATION-DATE: August 1, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Chapman, Robert G.	Burlingame	CA	US	
Ostuni, Emanuele	Cambridge	MA	US	
Liang, Michael N.	Somerville	MA	US	
Yan, Lin	East Brunswick	NJ	US	
Whitesides, George M.	Newton	MA	US	

US-CL-CURRENT: [428/411.1](#); [428/426](#), [428/446](#), [428/457](#), [428/500](#)



Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 17. Document ID: US 20020022044 A1

L2: Entry 17 of 20

File: PGPB

Feb 21, 2002

PGPUB-DOCUMENT-NUMBER: 20020022044

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020022044 A1

TITLE: Non-toxic coating composition, methods of use thereof and articles protected from attachment of biofouling organisms

PUBLICATION-DATE: February 21, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Matias, Jonathan R.	New York	NY	US	

US-CL-CURRENT: 424/405

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 18. Document ID: US 20020019457 A1

L2: Entry 18 of 20

File: PGPB

Feb 14, 2002

PGPUB-DOCUMENT-NUMBER: 20020019457

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020019457 A1

TITLE: Metal-containing monomer dissolved mixture, metal-containing resin and antifouling paint composition

PUBLICATION-DATE: February 14, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Sugihara, Mitsunori	Nagoya-shi		JP	
Ikegami, Yukihiro	Nagoya-shi		JP	
Hotta, Kazuhiko	Nagoya-shi		JP	
Nagasaka, Toshio	Otake-shi		JP	
Iwase, Kunio	Nagoya-shi		JP	

US-CL-CURRENT: 523/122; 252/389.1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 19. Document ID: US 20010051274 A1

L2: Entry 19 of 20

File: PGPB

Dec 13, 2001

PGPUB-DOCUMENT-NUMBER: 20010051274  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20010051274 A1

TITLE: Antifouling compounds and uses thereof

PUBLICATION-DATE: December 13, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Alberte, Randall S.	Falmouth	ME	US	
Zimmerman, Richard C.	Pacific Grove	CA	US	

US-CL-CURRENT: 428/411.1; 424/411, 523/122

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMOC
Draw Desc	Image									

☐ 20. Document ID: US 20010026802 A1

L2: Entry 20 of 20

File: PGPB

Oct 4, 2001

PGPUB-DOCUMENT-NUMBER: 20010026802  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20010026802 A1

TITLE: Method of controlled release and controlled release microstructures

PUBLICATION-DATE: October 4, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Price, Ronald R.	Stevensville	MD	US	
Schnur, Joel M.	Burke	VA	US	
Schoen, Paul E.	Alexandria	VA	US	
Testoff, Mary	Greenbelt	MD	US	
Georger, Jacque H. JR.	Springfield	VA	US	
Rudolph, Alan	Bowie	MD	US	
Brady, Robert F.	Gaithersburg	MD	US	

US-CL-CURRENT: 424/405; 424/417, 424/450

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMOC
Draw Desc	Image									

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Terms	Documents
anti adj1 fouling and marine organism	20

**Display Format:**

[Previous Page](#)      [Next Page](#)

## STN SEARCH

09/998,284

11/21/03

=&gt; file .nash

=&gt; s anti (1w) foul? and marine organism

L1 2 FILE MEDLINE  
L2 21 FILE CAPLUS  
L3 4 FILE SCISEARCH  
L4 7 FILE LIFESCI  
L5 8 FILE BIOSIS  
L6 4 FILE EMBASE

TOTAL FOR ALL FILES

L7 46 ANTI (1W) FOUL? AND MARINE ORGANISM

=&gt; s 17 not 2000-2003/py

TOTAL FOR ALL FILES

L14 20 L7 NOT 2000-2003/PY

=&gt; dup rem l14

PROCESSING COMPLETED FOR L14

L15 20 DUP REM L14 (0 DUPLICATES REMOVED)

=&gt; d ibib abs 1-20

L15 ANSWER 1 OF 20 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1998:665761 CAPLUS

DOCUMENT NUMBER: 129:322730

TITLE: **Anti-fouling** laminate marine structures

INVENTOR(S): Kohn, Henri-Armand

PATENT ASSIGNEE(S): Malawi

SOURCE: U.S., 6 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5820737	A	19981013	US 1997-805475	19970225

PRIORITY APPLN. INFO.: US 1997-805475 19970225

AB A marine structure submersible in seawater, such as a hull, which when elec. activated is then resistant to fouling by **marine organisms**. The hull is formed by a structural laminate having a core sandwiched between inner and outer skins. The outer skin which forms the exposed surface of the hull is coated with a metallic paint defining a cathodic electrode. The core is constituted by balsa wood or foam plastic modules attached to an open-mesh scrim that includes conductive fibers to create an elec. grid defining an anodic electrode that is embedded in the laminate. Impressed across the electrodes is a direct voltage to establish an elec. field causing **marine organisms** which seek to foul the hull surface to migrate away from this surface. Alternatively, the cathodic electrode may be formed by an open-mesh scrim defining an elec. grid interposed between the core and the outer skin.

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 2 OF 20 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1998:335813 CAPLUS

DOCUMENT NUMBER: 129:1654

TITLE: Biochemistry of fouling of **marine organisms** and **anti-fouling** techniques

AUTHOR(S): Shizuri, Yoshikazu

CORPORATE SOURCE: Mar. Biotechnol. Inst. Co., Ltd., Shimizu, 424, Japan

SOURCE: Kagaku Kogyo (1998), 49(6), 423-426

CODEN: KAKOAY; ISSN: 0451-2014

PUBLISHER: Kagaku Kogyosha

DOCUMENT TYPE: Journal; General Review

LANGUAGE: Japanese

AB A review with 15 refs., on (1) the assay method for antifouling substances

using reared barnacle larvae, (2) antifouling activities of 2,5,6-tribromo-1-methylgramine (TBG) isolated from a marine bryozoan Zoobotryon pellucidum and other related compds., (3) action mechanism of TBG on the barnacle larval settlement, (4) amino acid sequences of serotonin receptors of barnacle Balanus amphitrite, (5) bioassay system for antifouling substances against mussels, and (6) structure and expression of adhesive proteins of mussels.

L15 ANSWER 3 OF 20 LIFESCI COPYRIGHT 2003 CSA on STN  
 ACCESSION NUMBER: 1999:67329 LIFESCI  
 TITLE: **Anti-fouling** laminate marine structures  
 AUTHOR: Kohn, H.  
 SOURCE: (19981013) . US Patent 5820737; US Class: 204/196; 114/67R; 114/222; 204/197; 205/724; 205/730; 205/737; 205/739; 205/740..  
 DOCUMENT TYPE: Patent  
 FILE SEGMENT: Q4  
 LANGUAGE: English  
 SUMMARY LANGUAGE: English

AB A marine structure submersible in seawater, such as a hull, which when electrically activated is then resistant to fouling by **marine organisms**. The hull is formed by a structural laminate having a core sandwiched between inner and outer skins. The outer skin which forms the exposed surface of the hull is coated with a metallic paint defining a cathodic electrode. The core is constituted by balsa wood or foam plastic modules attached to an open-mesh scrim that includes conductive fibers to create an electrical grid defining an anodic electrode that is embedded in the laminate. Impressed across the electrodes is a direct voltage to establish an electric field causing **marine organisms** which seek to foul the hull surface to migrate away from this surface. Alternatively, the cathodic electrode may be formed by an open-mesh scrim defining an electrical grid interposed between the core and the outer skin.

L15 ANSWER 4 OF 20 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1997:240841 CAPLUS  
 DOCUMENT NUMBER: 126:229345  
 TITLE: Isonitrile **anti-fouling** agents for marine applications  
 INVENTOR(S): Hagadone, Mark R.  
 PATENT ASSIGNEE(S): Synthetic Technology Corporation, USA; Hagadone, Mark R.  
 SOURCE: PCT Int. Appl., 37 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9709464	A2	19970313	WO 1996-US14656	19960830
WO 9709464	A3	19970403		
W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN				

PRIORITY APPLN. INFO.: US 1995-3002P P 19950831

AB Naturally-occurring isonitrile compds., or analogs or hydrolysis byproducts thereof such as the corresponding formamide, isocyanate or isothiocyanate, are applied to surfaces that will be continuously exposed to an aquatic environment to prevent the accumulation of aquatic organisms on structures continuously exposed to water. The isonitrile compds. prevent the settling and attachment of aquatic organisms such as Hydroides elegans tubeworms, biofouling organisms, Ciocalypta sponges, oysters, bryozoans, tunicates and diatoms. The isonitrile compds. comprise a C.gtoreq.6 hydrocarbon having .gtoreq.1 isonitrile groups, e.g., 1,6-di-isocyanohehexane. The isonitrile compds. can be formulated in a

variety of forms, including as paints, solns. or emulsions.

L15 ANSWER 5 OF 20 LIFESCI COPYRIGHT 2003 CSA on STN

ACCESSION NUMBER: 1999:67327 LIFESCI

TITLE: **Anti-fouling** composition

AUTHOR: Algar, B.

CORPORATE SOURCE: Borden

SOURCE: (19970325) . US Patent 5614006; US Class: 106/18.31;  
424/602; 424/604; 427/385.5; 427/386; 422/6; 523/122;  
523/177..

DOCUMENT TYPE: Patent

FILE SEGMENT: Q4

LANGUAGE: English

SUMMARY LANGUAGE: English

AB An **anti-fouling** composition for preventing or controlling the growth of aquatic or **marine organisms** comprising particles of a water-soluble glass dispersed in or suspended in a hardened liquid resin composition. The water-soluble glass contains phosphorous pentoxide in an amount of 58-66% by weight and copper oxide in an amount of 8-30% by weight of the glass. The composition may be coated onto a surface intended to be exposed to, or submerged in, an aqueous environment or may be formed, by molding or casting, into an article which may be submerged in fresh or sea water.

L15 ANSWER 6 OF 20 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1997:10757 CAPLUS

DOCUMENT NUMBER: 126:61531

TITLE: An introduction to organotin compounds and their use in antifouling coatings

AUTHOR(S): Champ, Michael A.; Seligman, Peter F.

CORPORATE SOURCE: Texas Eng. Experiment Station, DC Office, Texas A&M Univ. System, Arlington, VA, 22203, USA

SOURCE: Organotin (1996), 1-25. Editor(s): Champ, Michael A.; Seligman, Peter F. Chapman & Hall: London, UK.  
CODEN: 63SEAT

DOCUMENT TYPE: Conference; General Review

LANGUAGE: English

AB A historical review (87 refs.) of organotin compds. and a discussion on their use as biocides in **anti-fouling** coatings (boat-bottom paints). It is also a summary of the environmental effects of organotin compds. on nontarget organisms. A comparative summary of the toxicity of environmental concns. of Bu<sub>3</sub>Sn to different groups of **marine organisms** is also presented. The widespread use of this modern, high-technol. group of chems. in industrial, agricultural, and public health applications poses a potential global dilemma, which requires a better understanding of how to control and utilize the unique properties of organotin compds.

L15 ANSWER 7 OF 20 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1995:925576 CAPLUS

TITLE: Time-dependent dynamic contact angle analysis of poly(dimethylsiloxane-urethane-urea) segmented block copolymer films.

AUTHOR(S): Pike, John K.; Ho, Tai; Wynne, Kenneth J.

CORPORATE SOURCE: Materials Chemistry Branch, Naval Research Laboratory, Washington, DC, 20375-5320, USA

SOURCE: Book of Abstracts, 210th ACS National Meeting, Chicago, IL, August 20-24 (1995), Issue Pt. 2, POLY-024. American Chemical Society: Washington, D. C.

CODEN: 61XGAC

DOCUMENT TYPE: Conference; Meeting Abstract

LANGUAGE: English

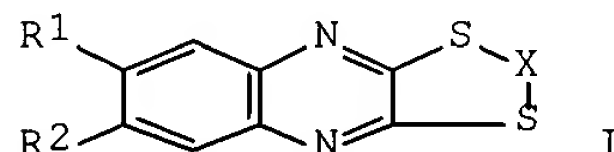
AB The goal of our research is to discern the compositional and morphol. features relevant to the formation of minimally adhesive surfaces which inhibit the settlement of **marine organisms**. Our work is part of an effort to develop non-toxic, **anti-fouling** coatings for use in marine environments. The successful material should satisfy three criteria: (1) have low surface energy to resist chem. bonding, (2) have low surface T<sub>g</sub> to minimize mech. locking of a fouling organism and (3) remain temporally stable in situ with respect to (1) and

(2). A series of polydimethylsiloxane-urethane-urea (PDMS-PUU) block copolymers was synthesized. In these and other multicomponent polymers, surface phase sepn. can occur resulting in the enrichment of PDMS at the surface, contributing to the obsd. low surface energy and dominating the surface properties. In the present study, we monitor the temporal in situ stability of PDMS-PUU polymer surfaces using Dynamic Contact Angle anal.

L15 ANSWER 8 OF 20 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1993:539271 CAPLUS  
DOCUMENT NUMBER: 119:139271  
TITLE: Preparation of substituted 1,3-dithiolo- and 1,4-dithiinoquinoxaline antimicrobials  
INVENTOR(S): Romer, Duane R.; Shankar, Ravi B.; Pews, R. Garth  
PATENT ASSIGNEE(S): Dow Chemical Co., USA  
SOURCE: U.S., 12 pp. Cont.-in-part of U.S. Ser. No. 814,527, abandoned.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5200409	A	19930406	US 1992-887036	19920522
CA 2101845	AA	19930701	CA 1992-2101845	19921204
WO 9313106	A1	19930708	WO 1992-US10476	19921204
W: CA				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 573635	A1	19931215	EP 1993-900865	19921204
EP 573635	B1	19980708		
R: DE, FR, GB, IT				
EP 784083	A2	19970716	EP 1997-102590	19921204
EP 784083	A3	19970806		
R: DE, FR, GB, IT				
PRIORITY APPLN. INFO.:			US 1991-814527	19911230
			US 1992-887036	19920522
			EP 1993-900865	19921204
			WO 1992-US10476	19921204
OTHER SOURCE(S):		MARPAT 119:139271		
GI				



AB The title compds. I [R1, R2 = H, halogen, NO2, CN, (un)substituted alkyl, (un)substituted alkoxy, (un)substituted arylcarbonyl, (un)substituted alkoxy carbonyl; X = C:C(CN)2, NCC:CCN; such that .gtoreq.1 of R1 or R2 is NO2, CN, alkoxy, alkylcarboxy, alkoxy carbonyl], useful in shampoos, lotions, etc. (no data), and for **anti-fouling** marine coatings, are prepd. Thus, 2,3-dichloro-6-nitroquinoxaline was cyclized with disodium 2-1,2-dicyano-1,2-ethylenedithiolate, forming 2,3-dicyano-7-nitro-1,4-dithiino[2,3-b]quinoxaline (II). A marine coating contg. 10% II was applied (1.5 g) to plastic panels which were placed in a marine environment for a 6-wk period along with a control panel coated with a control not contg. I agents. After the exposure, the panels were evaluated and the II-contg., coated panel was scored as an 8 and the control panel as a 2 (10 = no obsd. **marine organisms**, 0 = completely covered with **marine organisms**).

L15 ANSWER 9 OF 20 SCISEARCH COPYRIGHT 2003 THOMSON ISI on STN

ACCESSION NUMBER: 93:734813 SCISEARCH  
THE GENUINE ARTICLE: MK484  
TITLE: STUDIES ON THE ADHESION CONTROL OF **MARINE ORGANISMS** BY MEANS OF A HETEROGENEOUS POLYMER



SURFACE  
AUTHOR: MURASE H (Reprint); NANISHI K  
CORPORATE SOURCE: KANSAI PAINT CO LTD, RES LAB, 4-17-1 HIGASHIYAWATA,  
HIRATSUKA, KANAGAWA 254, JAPAN (Reprint)  
COUNTRY OF AUTHOR: JAPAN  
SOURCE: KOBUNSHI RONBUNSHU, (1993) Vol. 50, No. 11, pp. 837-845.  
ISSN: 0386-2186.  
DOCUMENT TYPE: Article; Journal  
FILE SEGMENT: PHYS  
LANGUAGE: Japanese  
REFERENCE COUNT: 13

\*ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS\*

AB To control the adhesion of **marine organisms** on polymer materials, effects of phase separation of polymer surfaces was studied. Polydimethylsiloxane modified with polyethylene glycol as a hydrophilic component and poly(dimethyldiphenylsiloxane) as a hydrophobic component were combined. Surface properties were characterized by SEM observation of morphology and measurements of surface energy and adsorption of protein. Actual fouling was investigated by immersion of test panels in Orido-Bay, Shimizu. Results showed that the film surface, which had phase-separated structure with free surface energy of 23.0 mJ/m<sup>2</sup> and 0.8 similar to 1.0  $\mu$ m in domain size, was especially effective to prevent adhesion of **marine organisms**. The adhesion of **marine organisms** on polymer films exhibited a good correlation with the adsorption of proteins such as gamma-globulin and fibrinogen. The results would be useful to develop materials for non-toxic **anti-fouling** coatings.

L15 ANSWER 10 OF 20 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN  
ACCESSION NUMBER: 1994:107799 BIOSIS  
DOCUMENT NUMBER: PREV199497120799  
TITLE: Studies on marine fouling of the bottom plates and propeller surface: I. A case on investigation of attached **marine organisms** and a measure for prevention of marine fouling.  
AUTHOR(S): Nagatomo, Kota [Reprint author]; Matsushita, Hiroshi; Inui, Eiichi [Reprint author]; Miyoshi, Yoshihiro  
CORPORATE SOURCE: Training Ship Koyo-Maru, Shimonoseki Univ. Fisheries, Japan  
SOURCE: Journal of Shimonoseki University of Fisheries, (1993) Vol. 41, No. 4, pp. 167-178.  
CODEN: SDKHAK. ISSN: 0370-9361.  
DOCUMENT TYPE: Article  
LANGUAGE: Japanese  
ENTRY DATE: Entered STN: 14 Mar 1994  
Last Updated on STN: 14 Mar 1994

AB **Marine organisms** attached to bottom plates and propeller surfaces increase the resistance of a ship. It makes the shaft in over-torque condition and also it causes lowered speed. As a result, propulsion efficiency decreases. To prevent the attachment of **marine organisms, anti-fouling** paints which contain tin-compounds and copper-compounds have been used. Recently, sea pollution caused by the toxicity of these paints has become a serious problem. Regulations banning the use of these type of paints were issued. There is no effective method of preventing marine fouling. The following experiments were conducted using an **anti-fouling** system, CATHELCO, equipped on the training ship "TENYO-MARU" in her home port through out one year. The main objectives of the present study are; 1) to investigate the attachment of **marine organisms** on bottom plates and propeller surfaces. 2) to clarify the effect of marine fouling prevention by pouring sea water with dissolved innoxious copper-ion which was supplied by the system into the dome of bow-thruster. The summary of the results is as follows. 1. Balanus is a prevalent species in early summer according to the identification of **marine organisms** but it changed to Bivalvia in the late summer, especially on the bow-thruster. 2. It is very important to polish and paint the bottom as smoothly as possible during drydock because **marine organisms** easily attach to parts where the paint has come off or unpainted areas. 3. Sea water with dissolved copper-ion (density; 12 apprx 18 ppb) is effective to prevent marine fouling.

L15 ANSWER 11 OF 20 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1995:81596 CAPLUS

DOCUMENT NUMBER: 122:242355

TITLE: **Anti-fouling** paints and tests for  
determining their specific characteristics.  
Efficiency, duration and impact on the medium

AUTHOR(S): Romairone, Vittorio

CORPORATE SOURCE: Consiglio Nazionale Ricerche, Istituto Corrosione  
Marina Metalli Genes, Italy

SOURCE: Double Liaison--Physique, Chimie & Economie des  
Peintures & Adhesifs (1993), 40(454), VIII-XI, 29-32  
CODEN: DLPAEL; ISSN: 1166-4398

DOCUMENT TYPE: Journal

LANGUAGE: English/French

AB A test is presented which examines the toxicity of anti-corrosive paints  
towards **marine organisms**.

L15 ANSWER 12 OF 20 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1993:43001 CAPLUS

DOCUMENT NUMBER: 118:43001

TITLE: The application of zinc-aluminum coatings to prevent  
corrosion of an iron boat

AUTHOR(S): Kawahara, S.; Inoue, M.; Sumida, R.

CORPORATE SOURCE: Nakayama Steel Work Ltd., Osaka, Japan

SOURCE: Therm. Spray: Int. Adv. Coat. Technol., Proc. Int.  
Therm. Spray Conf., 13th (1992), 877-80. Editor(s):  
Berndt, Christopher C. ASM Int.: Materials Park,  
Ohio.  
CODEN: 58DKAU

DOCUMENT TYPE: Conference

LANGUAGE: English

AB An Fe boat was spray coated with Zn-13% Al alloy for corrosion resistance  
and **anti-fouling**. After 2 yr of service in seawater,  
the Zn-Al coating was intact while a Zn-rich paint layer contg.  
chlorinated rubber was partially peeled off due to adhesive deterioration.  
The coating also inhibited the adhesion of **marine  
organisms**.

L15 ANSWER 13 OF 20 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1991:98047 CAPLUS

DOCUMENT NUMBER: 114:98047

TITLE: Prevention of the microbial adhesion on the ship's  
bottom plate by the use of **anti-  
fouling** agents. Lethal effect of TBTO on  
halotolerant bacterium, Brevibacterium sp

AUTHOR(S): Nagata, Shinichi; Ogawa, Yoshiki; Mimura, Haruo

CORPORATE SOURCE: Res. Inst. Mar. Cargo Transp., Kobe Univ. Mercantile  
Mar., Kobe, 658, Japan

SOURCE: Bokin Bobai (1990), 18(7), 323-6  
CODEN: BOBODP; ISSN: 0385-5201

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB Tri-Bu tin oxide (TBTO), the most popular of all the **anti-  
fouling** agents which prevent **marine organisms**  
from adhering to the bottom of the ship, was examd. for its effect against  
halotolerant bacterium, Brevibacterium sp. The bactericidal effect of  
TBTO was only negligible when the supplementary amt. was 0.01 ppm, but it  
became remarkable at concns. of more than 0.05 ppm. When 0.1 ppm of TBTO  
was added into the growing cell suspension, only 1% and less than 0.1% of  
the cells could survive after 1 h and over 2 h of incubation with TBTO,  
resp. The bactericidal effect of TBTO was expected to be reduced a little  
in the marine environment which contained about 0.5-0.6M NaCl and  
possessed a little alk. pH. Other **anti-fouling** agents  
examd. revealed a weaker bactericidal action against microorganisms in  
comparison with that of TBTO or its derivs.

L15 ANSWER 14 OF 20 LIFESCI COPYRIGHT 2003 CSA on STN

ACCESSION NUMBER: 90:15051 LIFESCI

TITLE: **Anti-fouling** surface structure,  
**anti-fouling** covering material and method  
of planting ribbons for producing **anti-**

**fouling** surface structure and covering material.  
AUTHOR: Taniguchi, Y.; Ohwada, Y.; Araki, M.  
CORPORATE SOURCE: Dai-Ichi High Frequency Co. Ltd., Tokyo (Japan)  
PATENT INFO.: US 4923730 1990  
SOURCE: (1990) . US Cl. 428/92; Int. Cl. B32B 33/00..  
DOCUMENT TYPE: Patent  
FILE SEGMENT: Q4  
LANGUAGE: English

L15 ANSWER 15 OF 20 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1991:435249 CAPLUS  
DOCUMENT NUMBER: 115:35249  
TITLE: Impact of tributyltin in Dutch coastal waters: an environmental problem  
AUTHOR(S): Laane, R. W. P. M.; Marquenie, J.; Ritsema, R.; Van den Ende, K. C. J.; Donard, O. F. X.  
CORPORATE SOURCE: Div. Tidal Waves, Rijkswaterstaat, The Hague, Neth.  
SOURCE: Report (1989), GWA0-89.024; Order No. PB90-253410, 16 pp. Avail.: NTIS  
From: Gov. Rep. Announce. Index (U. S.) 1990, 90(20), Abstr. No. 051,728  
DOCUMENT TYPE: Report  
LANGUAGE: English

AB In the last 10 yr **anti-fouling** paints contg. organotin compds. were increasingly used to treat ship hulls to prevent fouling. These organotin compds. (usually tributyltin) not only discourage a wide spectrum of **marine organisms** from setting on the hull, but also adversely affect many organisms in the surrounding seawater. The effects of organotin compds. was initially highlighted by the problems experienced by com. shellfish fisheries ; considerable evidence of far more extensive effects in the aquatic environment was subsequently presented. Once released into the aquatic environment Tributyltin (TBT) is involved in different processes. It is degraded biol. and via photochem. processes, releasing a Bu group step by step. The resulting ionic Sn and intermediates in the debutylation chain are then methylated by bacterial processes in the sediments to become trimethyltin.

L15 ANSWER 16 OF 20 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN

ACCESSION NUMBER: 1982:185602 BIOSIS  
DOCUMENT NUMBER: PREV198273045586; BA73:45586  
TITLE: QUALITY STUDY OF **ANTI FOULING** PAINTS.  
AUTHOR(S): ARIAS E [Reprint author]; MORALES E; SOUSA J M  
CORPORATE SOURCE: INSTITUTO DE INVEST PESQUERAS DE BARCELONA, PASEO NACIONAL, S/N BARCELONA-3  
SOURCE: Informes Tecnicos del Instituto de Investigaciones Pesqueras, (1981) No. 86, pp. 1-23.  
CODEN: ITIPD5. ISSN: 0304-5161.  
DOCUMENT TYPE: Article  
FILE SEGMENT: BA  
LANGUAGE: SPANISH

AB The macrobenthos settling on panels protected with antifouling paints in Barcelona harbor was investigated between July 1978-Oct. 1980. The antifouling action of different compositions of paints which were applied on metallic panels and submerged during periods of 19-26 mo. was studied. The seasonal changes during 2 yr and the relationships with the benthic fauna settled on the panels and several hydrological and biological variables measured in the harbor waters (temperature, dissolved O<sub>2</sub>, salinity, nutrients, phytoplankton pigments and zooplankton populations) were studied. Samples were regularly collected in 3 stations at 1, 2 and 3 m depths. Settlement of **marine organisms** on the panels were generally heaviest during the summer and very poor in winter. Fouling was more abundant in the 1st year. Hydrological data show undersaturation values of O<sub>2</sub> in the harbor waters and important concentration of nutrients. If conditions are favorable for a high primary production, the great quantity of organic matter had a detrimental effect on the zooplankton populations and therefore determined low intensities of fouling. The useful life of the paints can apparently be extended around 2 yr.

L15 ANSWER 17 OF 20 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1977:537377 CAPLUS

DOCUMENT NUMBER: 87:137377  
TITLE: The leaching mechanism of some organotin-toxicants from **anti-fouling** paints  
AUTHOR(S): De la Court, F. H.; De Vries, H. J.  
CORPORATE SOURCE: Paint Res. Inst., TNO, Delft, Neth.  
SOURCE: C. R. Congr. Int. Corros. Mar. Salissures, 4th (1977), Meeting Date 1976, 113-18. Cent. Rech. Etudes Oceanogr.: Boulogne, Fr.  
CODEN: 36NSAY

DOCUMENT TYPE: Conference  
LANGUAGE: English

AB Tributyltin fluoride (I) [1983-10-4] and triphenyltin fluoride (II) [379-52-2] have greater potential toxicity to **marine organisms** than triphenyltin chloride (III) [639-58-7], tributyltin chloride (IV) [1461-22-9], tributyltin oxide (V) [56-35-9], or tributyltin sulfide (VI) [4808-30-4]. A leaching rate of 1-2 .mu.g/cm2 of I or II is enough to prevent fouling, while .apprx.5 .mu.g/cm2 for III, IV, V, and VI is not sufficient. Leaching of I occurs in 2 steps, a degrdn. step and diffusion of the toxic degrdn. product. Degrdn. is fast compared to diffusion, which is the controlling step. In contrast to I, II does not degrade and leaches only slightly, and other ingredients such as ZnO and rosin are necessary for the paint to be antifouling. Most of the films are exhausted of toxicant in 1-1.5 years and must be renewed to maintain long-term activity.

L15 ANSWER 18 OF 20 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1966:410619 CAPLUS  
DOCUMENT NUMBER: 65:10619  
ORIGINAL REFERENCE NO.: 65:1908f-h,1909a  
TITLE: Copper in sheet and other commercial forms-properties and applications  
AUTHOR(S): Meckelburg, Ernst  
SOURCE: Blech (1966), 13(3), 116-24  
CODEN: BLCHAJ; ISSN: 0366-1040  
DOCUMENT TYPE: Journal  
LANGUAGE: German

AB This survey covers the types of Cu and alloys, available sizes, mech. properties, surface finish, processing methods, high- and low-temp. behavior, heat treatment, joining (soldering, brazing, welding), and corrosion resistance. Care should be taken to avoid direct contact between Cu alloys and more reactive materials; only cast Sn bronzes (with small amts. of Pb or Zn) are not susceptible to contact corrosion; the same applies to Monel (Ni/Cu). Atm. corrosion is low, even in heavily polluted atm., as long as the humidity is <63%, while at >75% relative humidity, severe corrosion occurs. Cu is not attacked by most dry gases, but suffers corrosion in moist Cl2 and forms dangerous products with C2H2. Fresh water is generally not corrosive while soft water (in particular with CO2) produces severe corrosion, as does deionized water at >600.degree.. Sn coatings on Cu are preferred for storage containers for distd. H2O and for fresh water in a marine environment. As to sea water, Cu combines good corrosion resistance with good **anti-fouling** characteristics. Pitting may occur at low flow velocities or by deposition of decompn. products of **marine organisms**; attack at high velocities may be due to local destruction of a protective layer with subsequent local element formation. Pure steam does not attack Cu unless its condensate contains CO2, NH3, or O. High temp. oxidn. is due to direct reaction with O reducing gases produce brittleness around 400.degree.. As to soils,; Cu is not attacked except by peat, slag, and high sulfide soils (0, 0-15, and 35 mm./yr., resp.). Attack by acids is enhanced by O or oxidizing matter. From among org. acids, Cu is severely attacked by chloroacetic acid. Severe attack is encountered with hot concd. HCl, dil. HNO3, alkalies contg. NH4OH, substituted ammonium compds., or cyanides. Attack by concd. NaOH is reduced by the low O soly. Hypochlorites and cyanides are the salts most deleterious to Cu and its alloys.

L15 ANSWER 19 OF 20 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1935:35438 CAPLUS  
DOCUMENT NUMBER: 29:35438  
ORIGINAL REFERENCE NO.: 29:4610a-c  
TITLE: **Anti-fouling** compositions

INVENTOR(S): Smith, Frank G.; Porritt, Benjamin D.; Dyer, Joseph W.  
DOCUMENT TYPE: Patent  
LANGUAGE: Unavailable  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 423876		19350211	GB	

AB An antifouling compn. for ships' hulls contains chlorinated rubber and, as a growth-inhibiting ingredient, Cu, Hg, Zn, As or Se, alone or in combination with each other. The chlorinated rubber may be mixed with a drying oil and plasticizers may be added. As thinners, turpentine, CCl4 and aromatic hydrocarbons are specified. Poisonous substances, e. g., HgO, ZnO, Cu2O and As2O3, may be incorporated and Al may be used as a pigment to give a light-colored surface to repel **marine organisms**.

L15 ANSWER 20 OF 20 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 1915:4801 CAPLUS  
DOCUMENT NUMBER: 9:4801  
ORIGINAL REFERENCE NO.: 9:725i,726a  
TITLE: **"Anti-fouling"** paint for ships' bottoms.  
INVENTOR(S): Comstock, D. F.  
DOCUMENT TYPE: Patent  
LANGUAGE: Unavailable  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 1123687		19150105	US	

AB **"Anti-fouling"** paint for ships' bottoms; formed of 98% of a "copper paint" or spar varnish and 2% of carnotite. The radioactive properties of the latter serve to prevent **marine organisms** from securing themselves to the ship or other material on which the paint is applied.

=> s anti (1w) foul? and (enzyme or oxidase)

L16 1 FILE MEDLINE  
L17 9 FILE CAPLUS  
L18 2 FILE SCISEARCH  
L19 1 FILE LIFESCI  
L20 4 FILE BIOSIS  
L21 1 FILE EMBASE

TOTAL FOR ALL FILES

L22 18 ANTI (1W) FOUL? AND (ENZYME OR OXIDASE)

=> s l22 not 2000-2003/py

L23 0 FILE MEDLINE  
L24 5 FILE CAPLUS  
L25 1 FILE SCISEARCH  
L26 1 FILE LIFESCI  
L27 3 FILE BIOSIS  
L28 0 FILE EMBASE

TOTAL FOR ALL FILES

L29 10 L22 NOT 2000-2003/PY

=> dup rem l29

PROCESSING COMPLETED FOR L29

L30 6 DUP REM L29 (4 DUPLICATES REMOVED)

=> d ibib abs

L30 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 1  
ACCESSION NUMBER: 1999:780328 CAPLUS

DOCUMENT NUMBER: 132:10526  
TITLE: **Anti-fouling** methods using  
**enzyme** coatings  
INVENTOR(S): Bonaventura, Celia; Bonaventura, Joseph; Hooper,  
Irving R.  
PATENT ASSIGNEE(S): Duke University, USA  
SOURCE: U.S., 21 pp., Cont. of U.S. Ser. No. 464,699,  
abandoned.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5998200	A	19991207	US 1991-683130	19910410
PRIORITY APPLN. INFO.:			US 1985-744547	19850614
			US 1990-464699	19900116

AB A method for preventing fouling of an aquatic app. by an aquatic organism which comprises affixing a biol. active chem. to a surface intended for use in contact with an aquatic environment contg. the organism, wherein the chem. is an **enzyme**, repellent, chelating agent, **enzyme** inhibitor, or non-metallic toxicant capable of hindering the attachment of the organism to the surface while affixed to the surface, is disclosed along with improved apparatuses which are produced using the method.

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d ibib abs 2-6

L30 ANSWER 2 OF 6 LIFESCI COPYRIGHT 2003 CSA on STN  
ACCESSION NUMBER: 2000:66277 LIFESCI  
TITLE: **Anti-fouling** methods using  
**enzyme** coatings  
AUTHOR: Bonaventura, C.; Bonaventura, J.; Hooper, I.  
CORPORATE SOURCE: Duke University  
SOURCE: (19991207) . US Patent: 5998200; US CLASS: 435/264;  
435/174; 435/180; 424/94.1; 424/94.63; 106/15.05; 422/6..

DOCUMENT TYPE: Patent  
FILE SEGMENT: Q4  
LANGUAGE: English  
SUMMARY LANGUAGE: English

AB A method for preventing fouling of an aquatic apparatus by an aquatic organism which comprises affixing a biologically active chemical to a surface intended for use in contact with an aquatic environment containing the organism, wherein the chemical is an **enzyme**, repellent, chelating agent, **enzyme** inhibitor, or non-metallic toxicant capable of hindering the attachment of the organism to the surface while affixed to the surface, is disclosed along with improved apparatuses which are produced using the method.

L30 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 1997:491495 CAPLUS  
DOCUMENT NUMBER: 127:96666  
TITLE: D-Gluconamide derivatives for preparing lipid-coated  
**enzymes** and antifouling marine paint  
compositions  
INVENTOR(S): Hamade, Ryoji; Yamamori, Naoki; Okahata, Yoshio  
PATENT ASSIGNEE(S): Nippon Paint Co Ltd, Japan  
SOURCE: Brit. UK Pat. Appl., 29 pp.  
CODEN: BAXXDU  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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GB 2306473	A1	19970507	GB 1996-21688	19961017
GB 2306473	B2	19981223		
JP 09118844	A2	19970506	JP 1995-278722	19951026
JP 09118842	A2	19970506	JP 1995-278718	19951026
JP 09124570	A2	19970513	JP 1995-278709	19951026
US 5770188	A	19980623	US 1996-742597	19961028
PRIORITY APPLN. INFO.:			JP 1995-278709	19951026
			JP 1995-278718	19951026
			JP 1995-278722	19951026

OTHER SOURCE(S): MARPAT 127:96666

AB Glucoside derivs. for **enzyme** modification are disclosed. The glucoside derivs. are R1,R2-substituted secondary amines, having the formula, N(R1)(R2)C(O)CH(OH)CH(OH)CH(OH)CH(OH)CH2(OH), wherein R1 and R2 each independently represents a hydrocarbon group having 6 to 20 carbon atoms. Also disclosed is a lipid-coated **enzyme** which shows high activity in org. solvents and **anti-fouling** paint compns. contg. a lipid-coated **enzyme**. An example includes prepn. of lipid deriv. by reaction of gluconolactone with dilaurylamine. This lipid deriv. is then reacted with Mucor Miehei lipase to prep. the lipase deriv. The modified lipase had 87.5 U/mg activity in toluene, which is much higher activity in toluene than that of lipases modified with didodecyl glutamate gluconamide or monogalactosyl diglyceride. Antifouling paint-coated steel panels immersed in seawater were used to test the paint film antifouling activity and stability. Also included is the prepn. of alkyl resin and polyamino acid resin. These **enzyme** -susceptible paint resins are useful in self-polishing antifouling paint compns.

L30 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 2

ACCESSION NUMBER: 1997:89111 CAPLUS

DOCUMENT NUMBER: 126:127986

TITLE: Effects of triphenyltin on the potential activities of trypsinogen and chymotrypsinogen of red sea bream

AUTHOR(S): Kuroshima, Ryosuke; Kakuno, Akira; Koyama, Jiro

CORPORATE SOURCE: Environmental Conservation Div., National Res. Inst. of Fisheries Science, Yokosuka, 238-03, Japan

SOURCE: Nippon Suisan Gakkaishi (1997), 63(1), 85-89  
CODEN: NSUGAF; ISSN: 0021-5392

PUBLISHER: Nippon Suisan Gakkai

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB Organotin compds. have been used as **anti-fouling** reagents having high toxicity to aquatic organisms. In this study, in order to assess the toxic effects of triphenyltin on fish, potential activities of chymotrypsinogen and trypsinogen in the liver of red sea bream, Pagrus major, and the activities of chymotrypsin and trypsin in the intestine were detd. The red sea bream were exposed to triphenyltin ranging from 0.13 .mu.g/L to 3.23 .mu.g/L for up to 8 wk. The potential activities of chymotrypsinogen and trypsinogen in the liver of exposed fish were much lower than those in the control fish whereas the active forms of these **enzymes** in the intestine were not affected by the exposure to triphenyltin. The feeding activity of fish exposed to triphenyltin of 3.23 .mu.g/L was depressed. The results of the relationship between diet amts. given and **enzyme** activities suggested that starvation caused a remarkable decrease in the potential activities of the zymogens in the liver, suggesting the depression of potential activities of the zymogens in the liver of exposed fish was not caused by the change in feeding activity of fish but by the toxic effects of triphenyltin. The potential activities of the zymogens were influenced by the exposure to triphenyltin of 0.13 .mu.g/L for 4 wk.

L30 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 3

ACCESSION NUMBER: 1993:40405 CAPLUS

DOCUMENT NUMBER: 118:40405

TITLE: Preparation of **enzyme** immobilized membranes and their self-cleaning and **anti-fouling** abilities in protein separations

AUTHOR(S): Chen, Jiayan; Wang, Liancheng; Zhu, Zhengyu

CORPORATE SOURCE: M and B Co., Shenzhen, 518057, Peop. Rep. China

SOURCE: Desalination (1992), 86(3), 301-15

CODEN: DSLNAH; ISSN: 0011-9164



DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB The prepn. and testing of self-cleaning membranes contg. immobilized **enzymes** are described. Satisfactory improvements of permeate flux are obtained, and some information on the change of structure of the **enzyme** layer is obtained indirectly. The expts. illustrate that it is possible to maintain a relatively high flux while the amt. of **enzyme** is decreased by optimizing the structure of the **enzyme** layer. Detn. of the activity and amt. of **enzyme** immobilized and of the loss of protein and effect of immobilized **enzyme** on protein mols. are also discussed.

L30 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1961:96411 CAPLUS  
 DOCUMENT NUMBER: 55:96411  
 ORIGINAL REFERENCE NO.: 55:18137h-i,18138a  
 TITLE: Antifouling coatings  
 INVENTOR(S): Greathouse, Glenn A.  
 PATENT ASSIGNEE(S): U.S. Dept. of the Navy  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Unavailable  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2978338		19610404	US	

AB **Anti-fouling** compns. that prevent the attachment of fouling organisms to submerged surfaces function by interrupting the functioning of the **enzyme** systems of the organisms. An example is 1-3% N-(trichloromethylthio)tetrahydrophthalimide, 1-4% octachloro-4,7-methanotetrahydroindan, and the rest a conventional nitrocellulose lacquer.

=> s chondrus crispus

L31 0 FILE MEDLINE  
 L32 2 FILE CAPLUS  
 L33 0 FILE SCISEARCH  
 L34 0 FILE LIFESCI  
 L35 4 FILE BIOSIS  
 L36 0 FILE EMBASE

TOTAL FOR ALL FILES

L37 6 CHONDRUS CRIPUS

=> dup rem 137

PROCESSING COMPLETED FOR L37

L38 6 DUP REM L37 (0 DUPLICATES REMOVED)

=> d ibib abs 1-6

L38 ANSWER 1 OF 6 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN

ACCESSION NUMBER: 2003:230491 BIOSIS  
 DOCUMENT NUMBER: PREV200300230491  
 TITLE: Carrageenophytes of occidental portuguese coast: 2-spectroscopic analysis in eight carrageenophytes from Buarcos bay.  
 AUTHOR(S): Pereira, Leonel [Reprint Author]; Mesquita, Jose  
 CORPORATE SOURCE: Laboratory of E.M. and Phycology, Botany Department, University of Coimbra, 3000, Coimbra, Portugal  
 leonel@ci.uc.pt  
 SOURCE: Biomolecular Engineering, (February 2003) Vol. 20, No. 2, pp. 69. print.  
 Meeting Info.: Marine Biotechnology: Basics and Applications. Spain. February 25-March 01, 2003. European Society for Marine Biotechnology.  
 ISSN: 1389-0344 (ISSN print).  
 DOCUMENT TYPE: Conference; (Meeting)  
 Conference; Abstract; (Meeting Abstract)  
 LANGUAGE: English

ENTRY DATE: Entered STN: 14 May 2003  
Last Updated on STN: 14 May 2003

L38 ANSWER 2 OF 6 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN  
ACCESSION NUMBER: 1993:139299 BIOSIS  
DOCUMENT NUMBER: PREV199395072099  
TITLE: Productivity of *Chondrus crispus* Stackhouse (Rhodophyta, Gigartinales) in sublittoral Prince Edward Island, Canada: II. Influence of temperature and nitrogen reserves.  
AUTHOR(S): Juanes, J. A. [Reprint author]; McLachlan, J. L.  
CORPORATE SOURCE: Univ. Cantabria, Dep. Ciencias Tec. Agua y del Medio Ambiente, Avenida de los Castros s/n, 39005 Santander, Spain  
SOURCE: Botanica Marina, (1992) Vol. 35, No. 5, pp. 399-405.  
CODEN: BOTNA7. ISSN: 0006-8055.  
DOCUMENT TYPE: Article  
LANGUAGE: English  
ENTRY DATE: Entered STN: 16 Mar 1993  
Last Updated on STN: 17 Mar 1993

AB Cultivation experiments with *Chondrus crispus* were done monthly, from May through November. Two temperatures (control at 15 degree C and field temperature) and two levels of nutrients (high and low) were combined in factorial-designed experiments. There were seasonal differences in light-saturated photosynthetic capacities at 15 degree C (PS-max) and 5 degree C (PS-5) at the beginning of the experiments. These capacities were enhanced during the experimental period, and indicated that the nutrient enrichment effect was independent of the incubation temperatures but controlled by the experimental temperature. The PS-max values corresponding to high and low levels of nutrient treatment were sufficiently different to identify the dominant effect of temperature. Those values were significantly correlated with corresponding internal nitrogen concentrations of the fronds, showing different saturation values for nitrogen at PS-max and PS-5. The results of those experiments can be used in an ecological interpretation of temperature and nitrogen limitations on the productivity of *Chondrus crispus* on Prince Edward Island.

L38 ANSWER 3 OF 6 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN  
ACCESSION NUMBER: 1988:459344 BIOSIS  
DOCUMENT NUMBER: PREV198886101063; BA86:101063  
TITLE: STRUCTURE OF THE CHONDRUS-CRISPUS COMMUNITY ALONG THE CENTRAL COAST OF ASTURIAS NORTHERN SPAIN.  
AUTHOR(S): SILVA P [Reprint author]; FERNANDEZ C  
CORPORATE SOURCE: DEP BIOL ORGANISMOS SISTEMAS, AREA ECOL, UNIV OVIEDO  
SOURCE: Investigacion Pesquera (Barcelona), (1988) Vol. 52, No. 1, pp. 123-134.  
CODEN: IPESAV. ISSN: 0020-9953.  
DOCUMENT TYPE: Article  
FILE SEGMENT: BA  
LANGUAGE: SPANISH  
ENTRY DATE: Entered STN: 18 Oct 1988  
Last Updated on STN: 18 Oct 1988

AB A typical intertidal community characterized by dominance of *Chondrus crispus* appears on the central coast of Asturias (northern Spain). It is placed between 0.4 and 0.8 m over the zero tide level. The most important plant and animal species (*Chondrus crispus*, *Corallina elongata*, *Polysiphonia fruticulosa*, *Patina pellucida*, *Tricolia pullus*, *Barleeia rubra*, *Bittium reticulatum*, *Acanthochiton fascicularis*, *Dynamene bidentata* and *Dynamene magnitorata*) seem to follow a patchy distribution. The fine scale structure by a polar ordination shows two elementary units dominated by *Chondrus crispus* and *Corallina elongata*, both overlapping in a continuum of vegetation. There were notable differences in the zoobenthos composition depending on the existence of *Chondrus* vegetation.

L38 ANSWER 4 OF 6 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN  
ACCESSION NUMBER: 1986:278271 BIOSIS  
DOCUMENT NUMBER: PREV198682022134; BA82:22134  
TITLE: SPAWNING AND EXPLOITATION OF ATLANTIC HERRING *CLUPEA-HARENGUS* AT ESCUMINAC IN THE SOUTHWESTERN GULF OF ST.-LAWRENCE CANADA SPRING 1983.

AUTHOR(S): MESSIEH S [Reprint author]; POTTLE R; MACPHERSON P; HURLBUT  
T  
CORPORATE SOURCE: DEP FISH OCEANS, FISH RES BRANCH, PO BOX 5030, MONCTON, NEW  
BRUNSWICK, CANADA E1C 9B6  
SOURCE: Journal of Northwest Atlantic Fishery Science, (1985) Vol.  
6, No. 2, pp. 125-134.  
ISSN: 0250-6408.  
DOCUMENT TYPE: Article  
FILE SEGMENT: BA  
LANGUAGE: ENGLISH  
ENTRY DATE: Entered STN: 4 Jul 1986  
Last Updated on STN: 4 Jul 1986

AB An Atlantic herring (*Clupea harengus* L.) spawning bed at Escuminac,  
Miramichi Bay, in the southwestern Gulf of St. Lawrence was surveyed by  
scuba divers in May 1983. The bed extended 2,200 m along the shore with a  
mean offshore width of 400 m. Herring were distributed over a depth range  
of 0.8-3.3 m. The substrate consisted of bedrock and rubble, with Irish  
moss (*Chondrus crispus*) and, to a lesser extent,  
rockweed (*Fucus* sp.) being the major macrophytes. Bottom temperature  
ranged from 6.5.degree. to 9.3.degree. C during the incubation period  
which lasted for 14-16 days. Non-viable herring eggs constituted about 5%  
of those examined for stage of development in late May. Intensity of egg  
deposition varied from a few scattered eggs to patches which were 4-5  
layers deep and was significantly correlated with algal abundance. Mean  
density of eggs over the entire bed about 10 days after spawning was  
nearly 25,000 eggs per m<sup>2</sup>. After adjustment of the estimated deposition  
of eggs for loss due to predation by fish, use of mean fecundity and mean  
weight values indicated that the total number of eggs on the spawning bed  
were produced by approximately 930,400 mature herring (or about 210 tons).  
The catch of immature herring off Escuminac from the prespawning and  
spawning concentrations in 1983 was about 4,400 tons, which implies an  
exploitation rate of 95%. Aerial photographic surveys of fishing activity  
off Escuminac in 1983 indicated very large concentrations of herring  
gillnets on and around the spawning ground, and it is believed that these  
nets caught most of the mature herring before they could spawn.

L38 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1959:2539 CAPLUS  
DOCUMENT NUMBER: 53:2539  
ORIGINAL REFERENCE NO.: 53:508h-i,509a  
TITLE: Amino acids, peptides, and proteins of Irish moss,  
*Chondrus crispus*  
AUTHOR(S): Young, E. Gordon; Smith, Donald G.  
CORPORATE SOURCE: Atlantic Regional Lab., Halifax, Can.  
SOURCE: Journal of Biological Chemistry (1958), 233, 406-10  
CODEN: JBCHA3; ISSN: 0021-9258  
DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable

AB cf. C.A. 50, 4313c. An aq. EtOH ext. of *C. crispus* contains many common  
amino acids, especially arginine, citrulline, glutamic acid, and taurine.  
The presence of simple peptides contg. arginine, citrulline, glycine,  
threonine, and ornithine was shown chromatographically. Several  
components remained unidentified. Extn. of the dried plant with a  
NaCl-borate soln. at pH 8.4 dissolved about 70% of the total N in the  
plant, of which about 80% was dialyzable. Complex peptides were  
demonstrable in the ultracentrifuge and on paper chromatograms. Traces of  
albumin and globulin-like proteins were detected. About 25% of the  
protein N was held firmly in the insol. residue and could not be dissolved  
by such reagents as urea, Na ethylenediaminetetraacetate, KCNS, or Na  
lauryl sulfate. Such residues contained more than 50% protein. The  
distribution of amino acids in them indicated the absence of citrulline  
and ornithine, a high content of arginine, and a marked similarity to  
other algal proteins.

L38 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1951:6053 CAPLUS  
DOCUMENT NUMBER: 45:6053  
ORIGINAL REFERENCE NO.: 45:1043c-i,1044a-b  
TITLE: Polysaccharides of carrageen. III. Confirmation of the  
1,3-linkage in carrageenin, and the isolation of  
L-galactose derivatives from a resistant fragment

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AB cf. C.A. 42, 3332a. The **Chondrus crispus** polysaccharide, carrageenin (I) (cf. C.A. 37, 3406.7) (9 g.) was heated 4 hrs. at 100.degree. under N with 400 cc. 0.1 N (CO<sub>2</sub>H)<sub>2</sub> contg. 0.05 M (CO<sub>2</sub>K)<sub>2</sub>, poured into 800 cc. EtOH, filtered, treated with 2 l. EtOH, neutralized with BaCO<sub>3</sub>, filtered, and concd. at 30.degree. in vacuo, giving a "glass" (II) (7.8 g.), contg. 5% galactose (III). An aq. soln. of II on dialysis through cellophane against distd. H<sub>2</sub>O and evapn. gave a material, [.alpha.]<sub>D</sub><sup>22.5</sup> 22.5.degree., contg. no SO<sub>4</sub>-, from which 25% of the original sulfuric ester groups had been removed. Methylation of II with NaOH and Me<sub>2</sub>SO<sub>4</sub> yielded small amts. of Me tetramethylgalactopyranoside (IV) (stemming from III) and largely a yellow glass giving with TlOEt in EtOH-C<sub>6</sub>H<sub>6</sub> a complex which, when boiled with MeI, filtered, and evapd., gave a brown glass, [.alpha.]<sub>D</sub><sup>21</sup> 21.degree. (CHCl<sub>3</sub>), contg. 20.4% SO<sub>4</sub> and 41.6% MeO; this, when hydrolyzed with (CO<sub>2</sub>H)<sub>2</sub> and methylated, gave a mixt. of the following Me glycosides: about 12% IV (identified after hydrolysis as the anilide, m. 186-8.degree.), about 18% Me 2,4,6-trimethyl-D-galactoside (identified as the anilide, m. 172.degree., and on a paper chromatogram) and Me 2,6-dimethylgalactoside (identified after hydrolysis on a paper chromatogram). These data support the previous conclusion that in I the principal linkage is through C1 and C3 with the SO<sub>4</sub> residue on C4. Although the free sugars isolated on hydrolysis were chromatographically homogeneous, their derivs. required several recrystns. before purity was reached, and in the light of results given below, they were probably contaminated with the corresponding L-enantiomorphs. When I was shaken repeatedly with 1% HCl in MeOH at room temp., the residue after washing with MeOH, soln. in warm H<sub>2</sub>O, treatment with BaCO<sub>3</sub>, centrifuging, concn. of the centrifugate, and pptn. by EtOH gave about 15% of a resistant fraction (V), [.alpha.]<sub>D</sub><sup>-5</sup> -5.degree. (H<sub>2</sub>O), contg. only 1.5% SO<sub>4</sub>, which on hydrolysis (and chromatographing) gave 71% III and 7% xylose. Methylation of V was difficult; the product (VI), [.alpha.]<sub>D</sub><sup>-50</sup> -50.degree., of highest MeO content (40.9%) was formed by acetylation followed by methylation. (These expts., as well as others yielding lower methylated products, are described in detail.) VI heated 36 hrs. at 70.degree. with 2% HCl in MeOH, followed by hydrolysis of the product gave on a quant. paper chromatogram approx. 1 part L-tetramethylgalactopyranose (VII), 2.4 parts 2,4,6-trimethylgalactose (VIII), 1.5 parts 2,4-dimethylgalactose (IX), and smaller amts. of monomethylgalactoses and trimethyl-D-xylopyranose, m. 89.degree.. These relative proportions are only rough approximations. By chromatographing on powd cellulose, the neutralized hydrolyzate of VI gave VII, whose anilide, m. 192-3.degree., [.alpha.]<sub>D</sub><sup>19</sup> 70.degree. (Me<sub>2</sub>CO), showed a marked m.-p. depression with its D-enantiomorph, [.alpha.]<sub>D</sub><sup>-80</sup> -80.degree. (Me<sub>2</sub>CO), m. 193.degree.. VIII, a sirup, evidently was a mixt. contg. 80-85% of the L-isomer (identified as the L-anilide, m. 174.degree., depressed by the D-isomer), [.alpha.]<sub>D</sub><sup>14</sup> 65.degree. .fwdarw. 20.degree. (Me<sub>2</sub>CO). The anilide of IX, m. 208.degree., however, was the D-isomer. The methylated sugars obtained on hydrolysis, the resistant portion of methylated I, include about 1 part trimethylxylose, 1 part tetramethyl-D-galactose, 2 parts 2,4,6-trimethyl-D-galactose, 4 parts IX, 2 parts VII, 6 parts L-form of VIII, and a mixt. of 2- and 4-methylgalactose. I appears to be a complex structure contg. (as 1/6 of the molecule) a resistant "backbone" rich in L-galactose residues, branched (as indicated by a high proportion of terminal groups), the branching points being D-galactose units linked through C1, C3, and C6, and with intermediate D- and L-galactopyranose units linked through C1 and C3. To this "backbone," chains of 1,3-linked D-galactose units carrying SO<sub>4</sub> groups on C4 are attached to those residues which are terminal groups in the isolated resistant skeleton. However, the possibility that I is a mixt. of polysaccharides still exists.

=> log y